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# finish

ceramic finishes on metal



## *Musts* IN MODERN HOMES

In these wartime days our housewives realize anew the importance of modern cellar and laundry equipment.

**F**URNACES, water heaters, washing machines and cabinets *must* have the smooth, easily cleaned finish of porcelain enamel. And wise is the manufacturer of these items who uses the base metal that makes those qualities *permanent*—U·S·S VITRENAMEL Sheets.

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tures and equipment. Now at war—in hospitals, laboratories, mess-halls, lavatories and kitchens—porcelain on VITRENAMEL is meeting the toughest tests of durability, resistance to acids, weathering and abrasion.

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surface that enables frit and metal to fuse into a single unit.

Our engineers, who specialize on applications of U·S·S VITRENAMEL Sheets, will be glad to consult with you regarding your problems of the moment and also your plans for future products, to give your goods the additional sales appeal that will mean bigger, more profitable business for you in the heat of inevitable postwar competition. Drop us a line today—you incur no obligation.

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*Pittsburgh and Chicago*

Columbia Steel Company, San Francisco, Pacific Coast Distributors  
United States Steel Export Company, New York



# UNITED STATES STEEL

# THE Finish Line

All of us who have been in the enameling industry for a period of years have unquestionably heard, at one time or another, statements such as the following:

"Porcelain enamel has just grown — like Topsy" —  
"The enameling industry has grown to its present place in spite of itself."

It is not our intent to justify such remarks, but the fact remains that they are made. The implication seems to be that if the wide use of porcelain enamel has been attained principally as a result of the inherent quality of the finish, that it could go much farther and much faster if the proper "punch" were put behind it.

This brings us to a word that is used in an article by J. C. Sharp in this issue of *finish*. The word is —

## "Complacency"

Says Mr. Sharp, "If we are to believe some of the published matter of recent date, the large electrical appliances are to be made of aluminum, glass, plastics, plywood, and other miscellaneous materials. Such statements seem preposterous to an enamel industry which is seemingly firmly entrenched. Our manufacturing history is full of cases where *complacency* resulted in an almost complete change-over. These predictions should be analyzed to see if there are substantial reasons back of such thinking. If there is any reason why porcelain enamel on steel is faced with replacement by some other material or finish, steps should be taken to counter the possible loss of that business."

## Lost business

We need only look to the refrigerator exterior (porcelain enameled exteriors dropped from 55% to about 5%

in a comparatively few years) and to the space heater field to see two valuable markets which slipped, both drastically and rapidly.

Had this business been lost to new finishes that we could honestly feel are superior, the change might be justified. But, inasmuch as this is definitely not the case in either field, our industry might be accused of *complacency* in these instances.

## Good signs

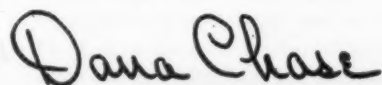
To say that nothing is being done to stimulate interest in porcelain enamel would be definitely unfair. It is good to see the Porcelain Enamel Institute again sponsoring an educational and promotional campaign to trade and specialized fields. Some of the metal and raw material suppliers are also doing their bit in the consumer field to educate the public and promote the use of porcelain enameled metal.

These are all good signs — but — let us remember that so far we are only scratching the surface and there is always much more to be done.

## New fields for old

In each period of a few years some new product has always taken its place in the field of porcelain enamel to more than make up for losses in existing markets. As a result the use of porcelain enamel has constantly shown a steady growth.

Let us consider what a business our industry could enjoy if, when these new fields are added to amplify enamel requirements, we would *get out and fight* to prevent existing business from slipping out of the picture.

  
Editor and Publisher



One of Inland's mills cold reducing enamel iron strip which will later be cut into sheets

## Inland "Texturized" Enameling Sheets

Blasted hardened steel rolls give Inland Enameling Sheets a special "texturized" surface—and to assure uniformity of surface, rolls are frequently changed.

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mechanical bond by projecting into the enamel and the iron alloy zone. The result is, Inland Enameling Sheets take a "double" grip on enamel—by chemical bond and by mechanical keying. These "texturized" enameling sheets assure shorter firing time, lower firing temperature, and more durable enameled products.

An Inland specialist is ready now to help you take full advantage of Inland Enameling Sheets. He will help you with design, forming and enameling problems.

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# Using conveyORIZED enamel plant

## for producing fragmentation bombs

also parts for gas ranges, army field ranges and immersion heaters

*By Ferd Rozene* • SUPERINTENDENT, ENAMELING PLANT  
(SUPERINTENDENT, FRAGMENTATION BOMB DEPARTMENT  
GEO. M. CLARK DIVISION, AMERICAN STOVE COMPANY, HARVEY, ILLINOIS)

*Finish desires to acknowledge cooperation of the Public Relations Department, Chicago Ordnance District.*



From peacetime gas ranges — to Army field ranges — to immersion heaters—to victory model gas ranges—to fragmentation bombs—is the merry-go-round that our plant personnel has learned to ride since war products took the place of peacetime production.

Right now, we are scheduled for the production on all of these items at the same time. Our plant space and equipment has been so arranged that this can be accomplished. Balancing of plant personnel is a major factor in the picture, as our plant is in a labor shortage area and every manhour is, therefore, important if we are to continue to meet our schedules.

Our "big job" at present is the production of 20 lb. fragmentation bombs for Army Ordnance. This is where our completely conveyORIZED enameling plant gets an opportunity to play its part in the war picture. It is the job of the enameling department to get out 13,500 bombs per day in a single eight-hour shift — and in addition to provide the necessary enameled parts for about 100 ranges per day, plus miscellaneous enameling for parts of the immersion heater and Army field range.

When our war contract department first brought in the fragmentation bomb job for consideration our president, Mr. R. K. Clark, and our plant executives considered the problem carefully for, as in the case of much

of the war conversion work, it was a type of job that had not been formerly handled in our plant.

Much of the work consists of assembling of components, finishing and testing, so as the bomb was studied in relation to our plant the possibilities for using our conveyORIZED porcelain enameling plant as a location for the production lines soon became apparent.

Our brushing department, which is fed by an overhead conveyor, soon showed up as a logical location for a production line, and our original order for bombs could readily have been produced on this line. As this is written our schedule is up to the point where two additional production lines or units are in operation.

### Rearrangement of plant

First of all we had to segregate our enameling activity so that necessary enamel finishing could be done with a minimum space requirement. This was accomplished by arranging all of the equipment for enameling around our radiant tube furnace. We already had a conveyORIZED ground coat dip unit alongside the furnace.

A good percentage of the enameling work is ground coat only, so this presents no problem with the original arrangement. Fortunately our continuous spray booths were already near the tube furnace and fit into the temporary layout without change in location. All that was necessary was to set up brushing tables between the spray booths and furnace.

### Service conveyor

When it became apparent that production on the bombs would reach a point requiring multiple assembly units, the handling of incoming and outgoing materials came in for study.

To answer this problem our company built a semi-enclosed loading dock on a siding immediately joining the enameling plant, and installed a 1200 ft. monorail conveyor to serve incoming and outgoing cars. The dock has a 4-car capacity.

This service conveyor travels from the unloading dock direct to the welding department, and then on to each of the finishing and assembling units, to serve the entire bomb plant.

### Bomb bodies

The coil spring bodies which form the principal "fragmentation" unit of the bomb, and are proving so disastrous to our war enemies, are purchased on sub-contract for arrival at the plant in carloads of 12,000 each.

With our present production schedule it is entirely possible for one of these bomb bodies to be loaded on the service conveyor from an incoming car in the morning, and return to the platform for shipment as a finished bomb the same day.

The first stop for the bomb body as it enters the plant is at a battery of projection welders located just inside the plant on the service conveyor line, where the mounting lugs are attached and welded on, and subjected to a 250 lb. air cylinder pull test.

### Degreasing units used

The next stop is at a row of three automatic degreasing units where the parts get a thorough cleaning preparatory to painting. Two of the degreasing units are steam heated; one is gas fired.

The three steps in the cleaning operation are:

1. A boiling solvent of stabilized trichlorethylene.
2. A rinse at about 160° F. of the

it suggests the possibility of studying its use in conjunction with acid pickling in preparing steel for porcelain enameling.

### Rust protection

When the clean bomb parts leave a degreasing machine they are fed to a floor type, motor driven conveyor (serving the three degreasers), which takes them to the paint department, formerly the stove japanning room.

essary here was to add sufficient conveyor line to the loop to take it to the unloading end of the japanning oven so that "finished" parts are loaded direct from the oven bars to the assembly conveyor.

To adapt our overhead conveyor, we merely added small fixtures to the existing conveyor hangers so that the bomb parts could be transported in sets. Each fixture or holder handles two bodies, two tubes and necessary



HEDRICH-BLESSING PHOTO

*This view shows the activity on one of three production lines in the American Stove fragmentation bomb plant. The location of this unit is within the conveyor loop formerly used to serve the enamel brushing department.*

same solvent. This rinse is fed by clean condensate resulting from condensation of vapor on the cool water jacket which completely encircles the unit.

3. A vapor bath of 180° F. coming from the boiling chamber. This is to "wash" the parts and bring them up to heat. As a result, when the parts come from the degreasing unit they are both clean and dry.

As we work with "vapor degreasing" equipment for war production,

The finish applied consists of a red rust inhibiting paint which is baked at 250° for ten minutes in the japanning oven.

### Main assembly line

The main assembly line has a capacity of 960 bombs per hour, and, as mentioned previously, is located in the space formerly occupied by our brushing department and served by the same conveyor that formerly served the brushers. All that was nec-

base assemblies.

The hand assembly operations are handled entirely by women, and all the work is done on the conveyor line.

### Time saving equipment

A few ingenious pieces of equipment are interesting for their time saving features. For instance, one operation is the assembling of a small set screw in the base plug. These are assembled at the rate of 10 per minute

through the use of an air driven screw driver.

Special equipment was installed for the rapid tightening of the final assembly. Here the assembly is placed vertically in an "air-grip" which speedily turns the threaded parts and tightens them with 80 lb. air pressure.

#### Automatic spraying used

Another operation of interest to enamellers is the simultaneous automatic spraying of both the interior and exterior of the bomb "shells." An automatic spray booth, equipped with four guns for the exterior and one for the interior, sprays the inside with a black acid resisting paint and the exterior with a red rust inhibitor. The spray booth conveyor then carries the unit through an oven attached to the spray booth which is heated with a steam unit heater.

Threaded parts, which are later greased, are protected from the paint by small "shields," which form a part of the automatic spray equipment.

In addition to this automatic spray machine for the bomb shells, there are also two other smaller automatic units for spraying head closing plugs and base closing plugs.

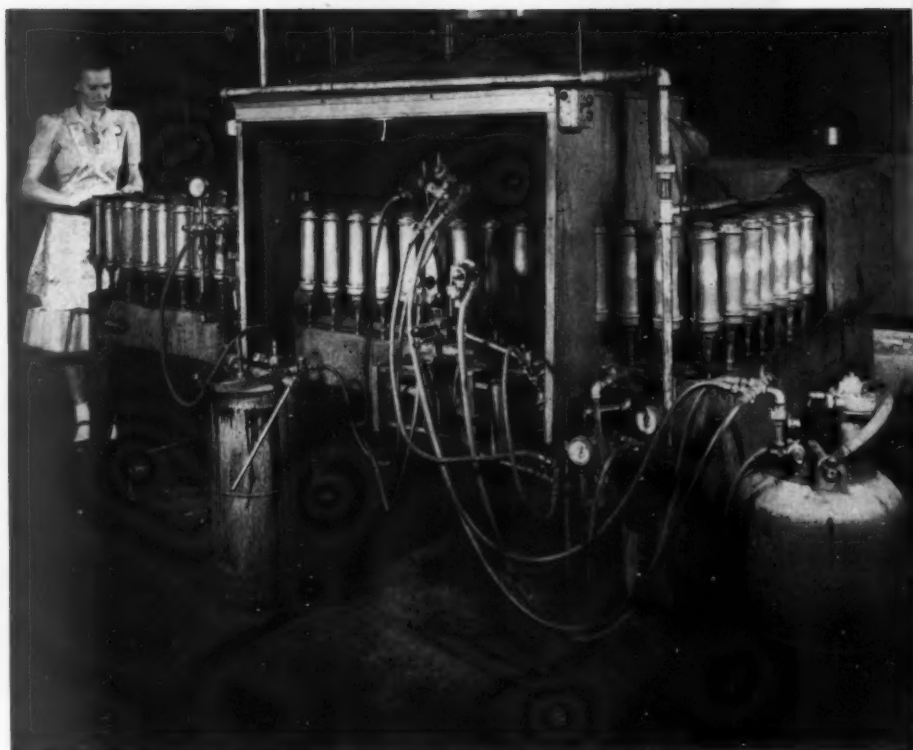
This set of three automatic units is duplicated on the other two production lines described later.

Here again it would seem to me that we enamellers may find new possibilities for the improvement of automatic spraying practice, through some of the ingenious automatic devices that have been developed for difficult war product spraying jobs.

The production line is so arranged that all the parts feed to the one brushing conveyor encircling the production group, and all final operations of assembly are completed on this line.

After the complete bomb reaches the end of the production line it is removed from the conveyor, rolled over a rubber marking stamp, coated with white stencil ink for identification, and then is returned immediately to the service conveyor serving the loading platform.

Our method of shipping consists of strapping the bombs to wooden pallets with steel strapping. (Each



*One of the automatic spraying units used in the American Stove Bomb plant. The girl at left is loading the conveyor and installing "shields" to protect threads. At right is entrance end of drier.*

HEDRICH-BLESSING PHOTOS

*One of the degreasing units for cleaning bomb bodies. Two operators — one for loading, and one for unloading. Chute at right feeds conveyor leading to finishing department.*

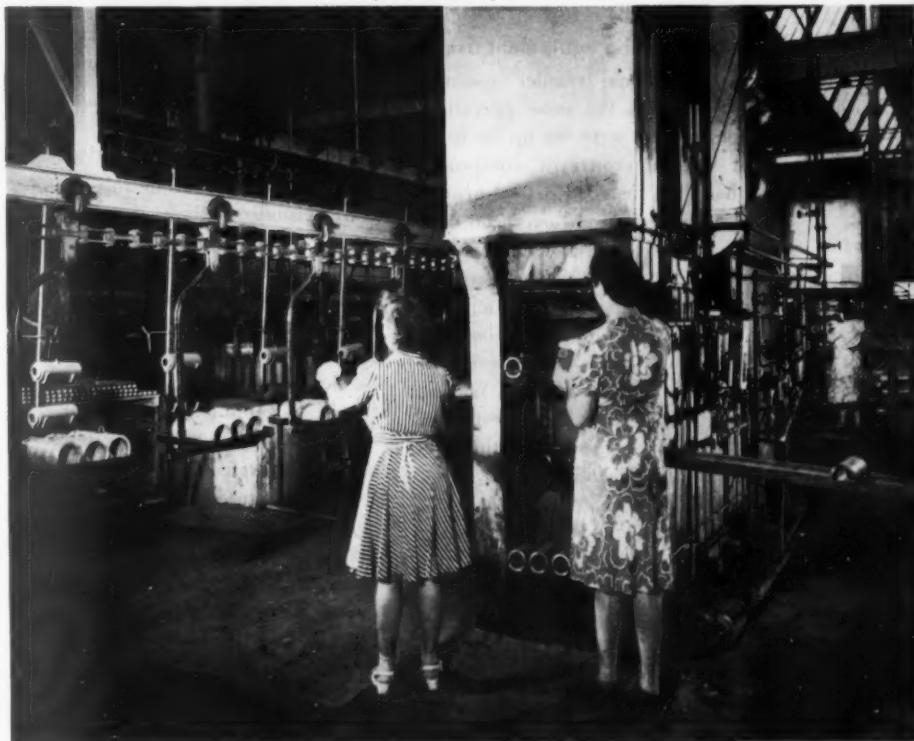






PHOTO COURTESY ACME STEEL CO.

*Showing method of strapping finished bomb bodies to wooden pallets for loading cars.*

pallet weighs one ton, and carries 144 bombs.) A fork type lift truck is used to transfer these pallets from the loading platform into the car, where they are stacked two pallets deep, forty pallets to the car.

#### **Other enameling equipment used**

Two additional smaller assembly units, in which the same operations are performed, were set up by using other existing conveyor equipment. We had just installed a new ground coat dip conveyor and overhead oven shortly before the war. This forms the backbone of our second assembly line, with the various operations being carried out along the conveyor chain. The parts then continue through the overhead drier. We use no heat in the drier, but do use the air circulator to accelerate the drying of the black acid resisting paint.

We found it possible to set up a third assembly line adjoining our counter-flow furnace. Here we use a ground coat dip conveyor as the main conveyor chain. This was originally designed to feed one side of the counter-flow furnace. By running both furnace chains in the same direction, we now use the counterflow

furnace conveyor equipment to carry the production from the two assembly lines just described to the center of the plant, where the bombs can be transferred direct to the service conveyor. In this manner the service conveyor picks up the production from all three assembly units as it leaves the plant.

#### **No lost motion**

Although the possibilities of using the enameling plant in this manner were visualized early in our company's consideration of the bomb project, I believe we have all been agreeably surprised by the results we have been able to obtain, by adapting existing conveyor equipment with so little change, and by using it as the background for the organization of work or "production centers."

Even though this is a comparatively new project for us, the service conveyor mentioned so often has carried the principal components into the plant, and over 2,000,000 finished bombs out. This figure will have been considerably increased before this information can appear in print.

#### **Enameling activity**

Our furnace is enameling parts for

about 100 porcelain enameled ranges per day, also combination burner hoods and instruction plates and burner flame shields for the immersion heaters.

There is a total of about 200 employees on one 8-hour day shift, with a small crew at night for cleanup and maintenance only.

We are all eager to produce as many of the Jap and German destroying bombs as possible, so that the boys overseas can get back to their own homes and we can get busy again supplying them with new porcelain enameled gas ranges.

As I mentioned briefly we feel that there are several points of interest in connection with our war production that might offer possibilities for study by production men and enamellers. Two were mentioned—degreasing and new equipment and methods for automatic spraying. There are others in our plant and undoubtedly every enameling plant working on war production has found equipment or processes that may open up new possibilities for better or faster production when we are again making peacetime products.



# Porcelain enamel's place

## in the postwar electrical appliance industry

In which an executive, familiar with the problems of both the appliance designer and the porcelain enameler, offers some solid advice to the enameling industry.

By *J. C. Sharp* • VICE PRESIDENT, EDISON GENERAL ELECTRIC APPLIANCE COMPANY  
CHICAGO, ILLINOIS



The relations between the electrical appliance industry and the porcelain enamel industry have been cordial and mutually beneficial for many years. Many recent articles and advertising programs indicate that there is some planning to separate or break up this old combination. This comes about through the presentation of postwar plans whereby new materials or new finishes are proposed for electrical appliances. Almost without exception these articles or plans have been brought out by persons not connected with the appliance industry nor the porcelain enamel industry in any way. In view of this situation, it seems wise to examine the possibilities for continuance of the relations which have been set up in prior years.

The use of porcelain enamel as a decorative and protective finish for the major electric appliances, such as refrigerators, ranges, dishwashers, etc., has been almost coincidental with the growth of the electrical appliances themselves. Ice boxes were largely created of wood and galvanized steel. Until the introduction of the electric refrigerator, there were relatively few ice boxes constructed with porcelain enameled steel. Almost from the beginning white porcelain enamel was adopted for electric refrigerators as a standard finish on the interior. It was also placed to a somewhat lesser extent on the exterior, but white was the accepted color.

### Ranges—from black steel to all-porcelain

The electric range was originally produced in the black steel form, which was standard for the stove industry. Porcelain enameled steel proved its advantages as a finish which was resistant to corrosion, temperature, and abuse, and had improved appearance also; it was adopted on ranges in the form of splashers, trims, etc. This progressed as rapidly as manufacturing problems permitted until the entire range was covered with white porcelain enamel.

The combination between major electric appliances and white porcelain enamel finish was natural. The electric appliances were invading fields which were already controlled by old, established, competitive devices. The new and aggressive electric industry naturally intended to adopt improvements of all kinds. The all-white porcelain appliances were associated with the modern uses of electricity. Since the electrical appliances were usually higher priced, regardless of finish, it made them much easier sold when finished with white porcelain enamel.

Progress of this development in the electric range industry is best shown by the two illustrations. Figure I is a range as produced about 1921. Figure II illustrates a range as produced in 1941—twenty years later. The story of this change is a most interesting one and is tied in very intimately with the development of porcelain enameling on steel as a process.

The first use of porcelain enamel,

as shown in Figure I, was in the form of relatively small pieces attached to the main stove structure. The porcelain enameled range shown in Figure II has a one-piece body which is completely finished inside and out in porcelain enamel. During the early years a notable portion of the service cost of the appliance was due to chipped or unsatisfactory porcelain enamel. Tremendous progress must have been made during those twenty years, else the electric appliance manufacturers would not have had the courage to build a large appliance in which one defect could have caused rejection of the entire device. This speaks well for the co-operation between the two industries and results of such co-operation.

*J. C. Sharp*



Mr. Sharp attended the U.S. Naval Academy, and was graduated in engineering from Ohio State University. He joined Edison General Electric Appliance Company in 1929 as assistant range engineer. In 1934 he became range engineer, and later chief engineer. In 1940 he was appointed vice president in charge of engineering. His interest in problems of design and enameling is evidenced in the accompanying article.

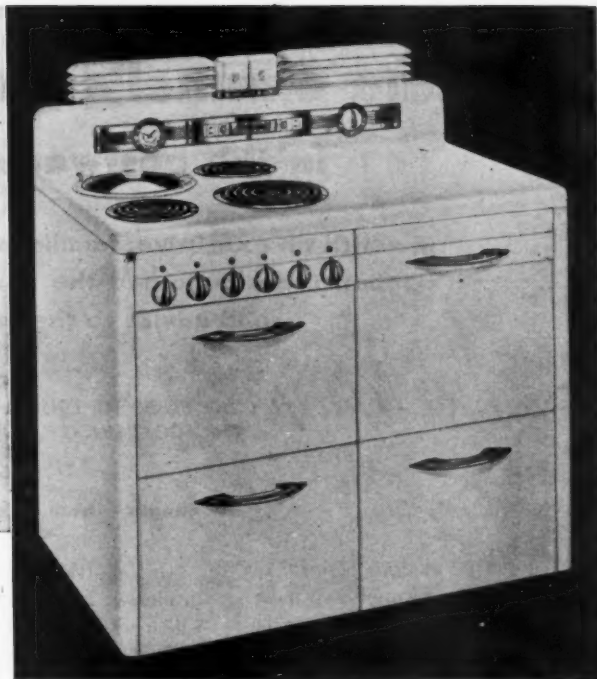


#### What about competitive materials?

If we are to believe some of the published matter of recent date, the large electrical appliances are to be made of aluminum, glass, plastics, plywood, and other miscellaneous materials. Such statements seem preposterous to an enamel industry which is seemingly firmly entrenched. Our manufacturing history is full of cases where complacency resulted in an almost complete changeover. These predictions should be analyzed to see if there are substantial reasons back of such thinking. If there is any reason why porcelain enamel on steel is faced with replacement by some other material or finish, steps should be taken to counter the possible loss of that business.

The greater portion of the plans and statements made in regard to the new materials come from people who have little knowledge of the problems involved. Many of the suggestions are made simply to excite interest since that is the only means whereby attention can be attracted. Other materials are proposed because of some slight deficiency in porcelain which the originators of the suggestion feel would be overcome by some other material. The fact that the proposed substitute may introduce other disadvantages greater than the deficiency has not occurred to them. These people have not been familiar with the development history of electric

↑  
Figure I  
Figure II  
→



appliances, and, consequently, have no real knowledge of what the American public needs or wants. They also do not realize that the American public does not always want what it needs. The expensive school of experience is the only institution from which a graduate is entitled to speak.

#### Constant improvement necessary

This does not mean that porcelain enamel is secure in all of its present applications. In spite of the progress made, porcelain enamel has certain inherent difficulties of application and use which must be studied and improved. Porcelain enamel is essentially a glass and has most of the advantages of that material. It also has some of the same deficiencies as glass which, in some instances, may overcome its advantages. When the latter situation exists, porcelain enamel will be used only so long as there is no other material or finish which will meet the requirements—cost, durability, and appearance. Research will continue in an effort to find a substitute which will be more satisfactory.

A situation such as this is best met by recognizing the deficiencies and taking steps to eliminate them. This article will call attention to some of the deficiencies in the hope that porce-

lain enamel will maintain its progress and eliminate them.

#### The designer's problems

Porcelain enamel practically dictated the designs of the major electric appliances a few years ago. The steel constructions used had to be designed almost entirely to eliminate troubles from the enamel. Assembly methods, formations, radii, edges, and many other items which affected cost and appearance were controlled by porcelain enamel. A very striking example of this is that in many instances it is necessary to use considerable more weight of steel than is required by the part itself merely to prevent warpage or chipping of the enamel. In the case of the water heater tank, the steel thickness used must be several times that actually required for strength in order to prevent cracking of the porcelain during the processing or under operating conditions.

When these conditions exist, then porcelain enamel has the very important element of cost working against it. An enamel with a coefficient of expansion about the same as that of steel, a greater coefficient of elongation, and a firing temperature low enough to eliminate distortion of the steel would simplify the

tank problem immensely. It would also open up other fields of use. The author's own familiarity with porcelain makes him realize how difficult these properties are to obtain, but they are the real hope of continued advance.

#### **Porcelain enamel synonymous with cleanliness**

The modern kitchen is based upon the major appliances finished in white. Cleanliness and sanitation are most essential in the kitchen and white porcelain enamel has grown to be considered synonymous with those terms. There are other materials and colors which are perfectly satisfactory in the kitchen but, in general, those appliances which are mostly associated with the preparation and storage of food are accepted best by the American public when finished in white porcelain enamel. There have been attempts made to use color but these are difficult to meet with high production methods. The resistance against too much white surface in the kitchen has been satisfactorily

handled by the judicious use of colors elsewhere, such as in cooking utensils, furnishings, etc.

White, having been accepted as standard, it is wise for the porcelain enamel industry to further this acceptance and claim it for its own standard. It is more difficult for competitive finish industries to produce a good durable white than any other color. This is competition's weak spot and the point where it should be kept on the defensive.

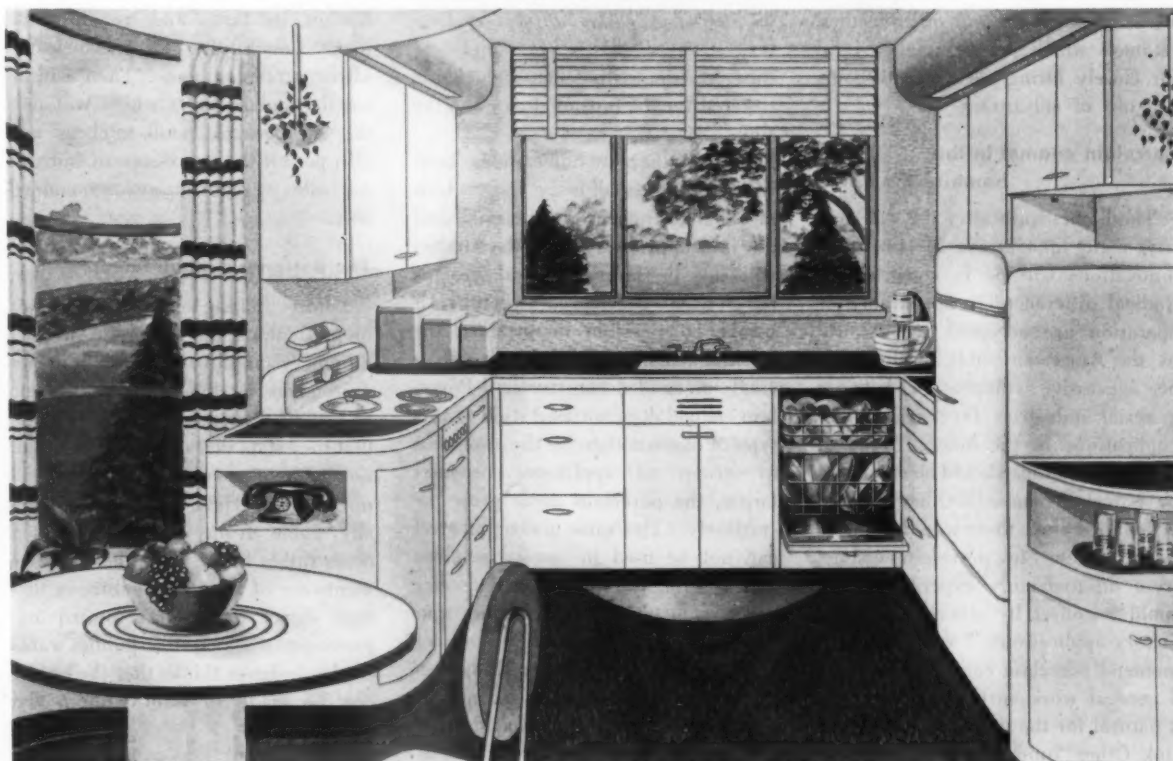
#### **Range ovens need study**

White porcelain enamel is virtually standard on the interiors of refrigerators. The ovens of ranges, although not as large as interiors of refrigerators, have somewhat similar construction. Many attempts have been made to brighten up the interior of range ovens in order to improve their appeal on the sales floor. Many ranges with bright or light colored oven linings have been produced. The problems of cleaning them after they are installed in the home have resulted in partial satisfaction in some

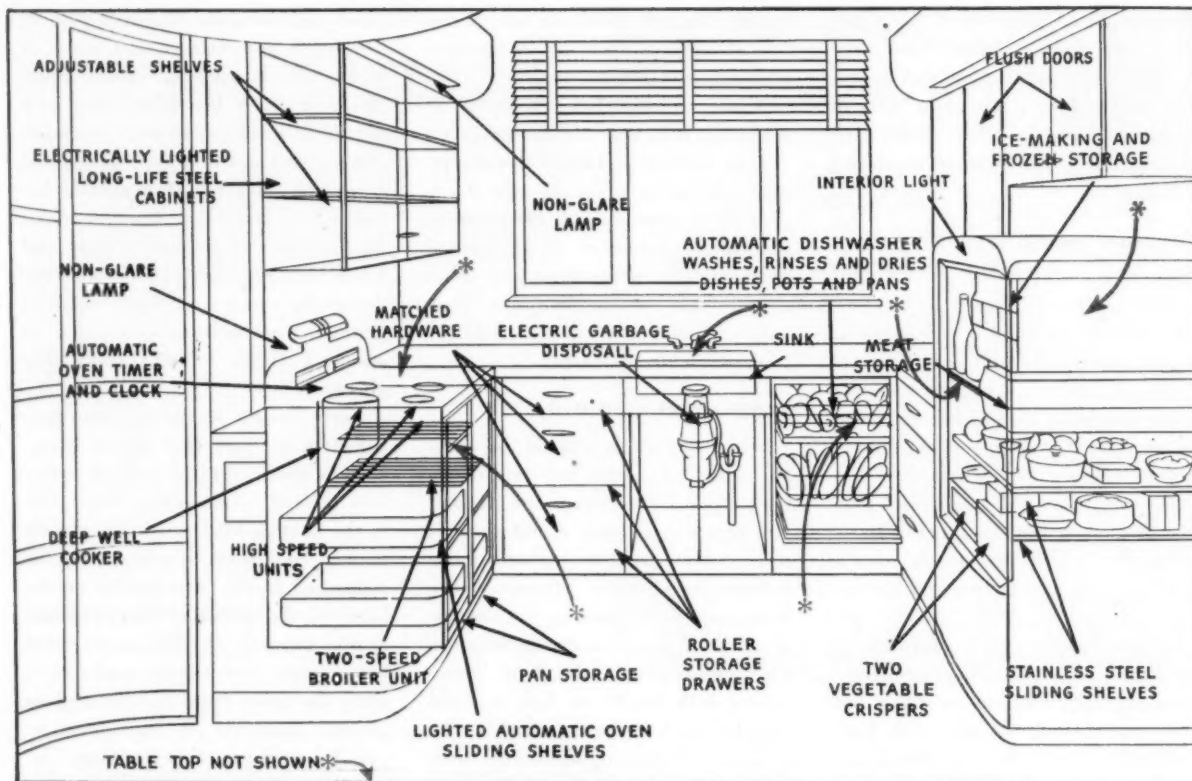
cases and complete dissatisfaction in others. A porcelain enamel finish or means of cleaning it, which would result in much less labor than now required, would meet with considerable success as a lining for ovens. The housewife does not discriminate between excessive labor brought about by the light colored oven lining and labor from all other causes; she condemns the entire appliance. The stove manufacturer naturally hesitates to adopt a finish which brings this about.

Early in the article attention was called to the fact that it was necessary to design into or around porcelain enamel. Appearance, especially in the modern kitchen with its closely banked equipment, is affected by the radii used on the parts and the cracks between the panels. The porcelain enamel finish in all instances required larger radii and larger cracks than when the same parts are finished in organic materials. It may never be possible to change this situation. The existence of the problem, however, does encourage attempts to use or-

*Here is an attractively designed kitchen with breakfast space that would be a bright spot in any postwar home . . . and . . . the units shown are in line with the author's opinion that designs for the immediate future should be consistent with practical evolution in product design.*







Colored arrows show present uses for porcelain enamel in the modern kitchen. We suggest that enamelers view the additional possibilities for using porcelain enamel in this kitchen.

ganic finishes where porcelain is most desirable because of temperature, abrasion, durability, or other factors. Enamels which permit smaller radii for closely fitting parts will discourage use of substitutes.

#### Porcelain enamel in the home of the future

The homes built after the war may have many innovations. Most of these innovations will be in construction. Radical differences in appearance or operation are accepted very slowly by the American public. There will be aggressive competition between material industries for various new applications in the home. Some of these applications should be attempted by porcelain enamel. Others should be avoided since there would be more damage done to porcelain enamel from unsatisfactory experience than could be offset by other more satisfactory applications. I would not recommend porcelain enameled steel for a general work surface finish. It is a natural for the top of the stove and sink. Other "quieter" materials should

be used on the cabinet work surfaces. No attempt should be made to expand the use of porcelain for this application since dissatisfaction simply results in competitive materials being fostered for the tops of stoves and the sinks.

Most of the new homes to be built will be in the small home class, which means that kitchens will be small and the sum appropriated for the kitchen will not be large. Several designs have been considered whereby it would be possible to produce the working elements of a kitchen in a single assembled construction. Porcelain enamel does not lend itself to this type of construction. As the appliance or group of appliances becomes larger, the porcelain areas grow accordingly. The same gauge of steel can not be used in one large piece which normally replaces three smaller parts. Difficulties of processing and the possibilities of the high costs of damage make such construction questionable. This does not mean that porcelain enamel is eliminated from a large part of the business, as it is

most probable that kitchens will not be so constructed. Lack of standardization in taste and requirements make possibilities of prefabricated kitchens rather remote. There will be small standard units which will permit inexpensive, small kitchens and also permit the expression of individual tastes or requirements at no added cost.

#### The designer's requirements

Before making any postwar plans or predictions, the successful product designer lays down some definite requirements for the appliances. Some of these requirements are negative in that they state that certain things shall not be done or certain materials shall not be used. These requirements usually come from experience, often times rather bitter. The other requirements are of a positive nature in that they direct the efforts toward improvements which the public wants or the designer thinks that the public can be made to want without too much effort.

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# The permanence of porcelain protection against corrosion

in which we get a glimpse of a new market for porcelain enameled metal

By *C. J. Rodman* • PRESIDENT, THE ALLIANCE WARE, INC., ALLIANCE, OHIO

**M**ATERIALS, to a chemist's mind, are an orderly arrangement of elemental constituents which compose such matter, existing usually in some static state. Under the influence of other elemental or chemical complexities, depending upon their nature, phase and temperature, something may happen when materials are brought together or married to each other. Some relatively inert things may explode! Other things may resist permanently the normal elements of chemical reaction or corrosion when brought within their sphere of influence. Substances which we regard as the more permanent are those which exist indefinitely no matter what chemical housekeeping has been their host.

Substances of an organic origin like cellulose, wood, animal products readily decompose or disintegrate. The chemist has done some handsome hocus-pocus with certain organics, sometimes mixed with inorganics, and has turned out so-called finishes such as paints, synthetic plastics and a thousand and one products, yet practically none has the apparent permanence or hardness of certain metals or alloys, illustrated by our stainless steels which are regarded as highly non-corrosive. Yet, for the long pull, all of these are but chaff in the hands of Father Time with his chemical tricks, unless adequately protected against normal disintegration resulting from association with bad company.

## Permanence in the light of "use"

Any article or product must be considered in the light of its use when permanence is seriously considered. I once invented a "chemical

factory" (1) the object of which was to quantitatively take all of the oxygen out of the air which would pass over it leaving only nitrogen for the protection of electrical transformers



C. J. Rodman

and kindred equipment. This "chemical factory" had to work 100% in temperatures of the torrid and frigid zones without any auxiliary coaxing. It worked so well that it literally chewed up the house in which it was first kept, made at it was of monel or stainless steel or any of the numerous non-corrosive alloys that were tried out as containers. It became necessary, finally, to resort to a highly acid resisting coated ceramic body as a container before the "chemical factory" could be used successfully commercially.

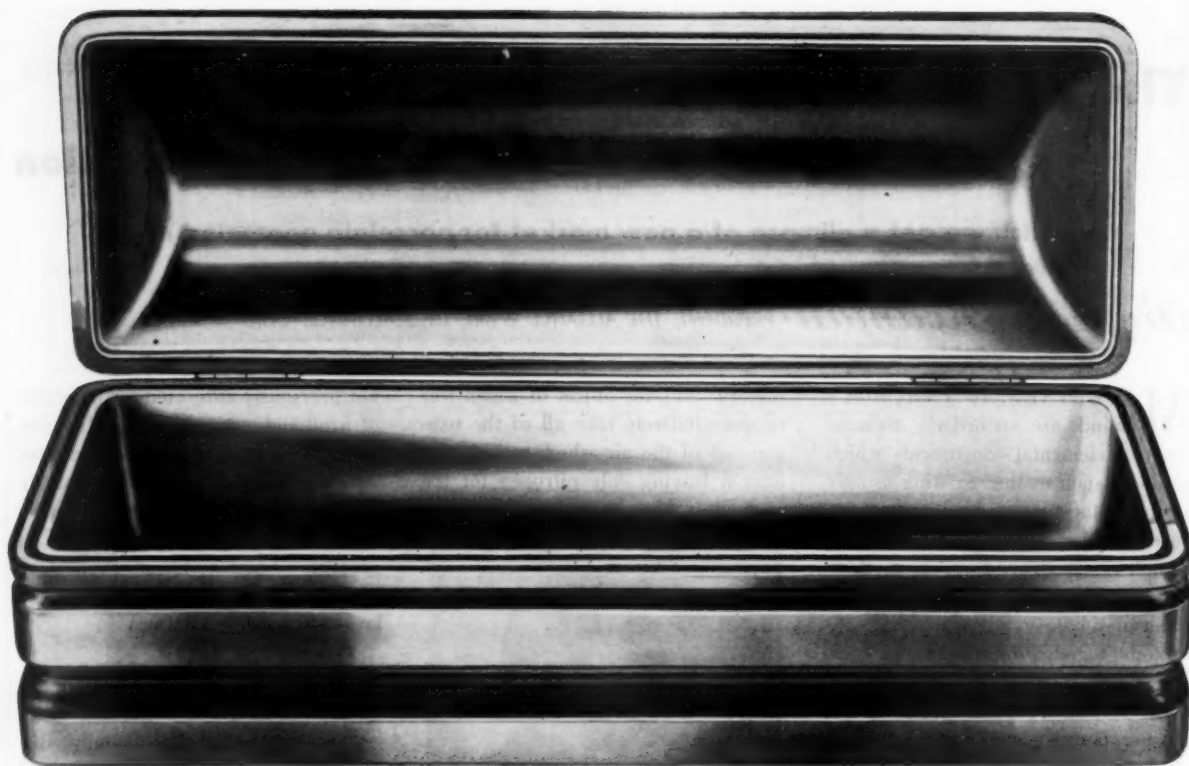
Did you ever examine the shape of the grains of sand at the seaside with a good magnifying glass or microscope? The roundness of the multi-colored glassy shapes was due to mechanical abrasion—not necessarily corrosion. Sand found inland,

not previously subjected to the action of wind and water, has beautiful lustrous surfaces and has thus existed for ages untold. Sand, or silicon dioxide, is the essential ingredient in a permanent porcelain coat and, if properly bonded to a supporting metal body which it protects, may last as the sands of time!

## Porcelain—a rich, historical background

Ages ago man accidentally discovered that certain earths mixed with sand, fused together, formed an exceedingly hard, glass-like rock, which was a crude vitreous enamel. Every civilization has made a similar discovery. The details of what is left of the Babylonian and Assyrian culture, 7000 B.C., is found in clay cones and tablets of the library of Nippon. Babylonian bricks were coated with a stanniferous enamel, a lost art for ages. The Moors brought it to light in the 13th century at Granada. In the earliest Chinese dynasties, articles, when formed of claylike substances, and baked or fired at high temperatures too long, were accidentally covered with a semi-vitreous coat. The Chinese claim an antiquity in the ceramic arts, second to no other civilization. The walk at Thebes, 4000 B.C., shows the potter's wheel and depicts the entire art. Back in the Egyptian antiquities of the Nile Valley in the first dynasty burial places, 3500 B.C., are found remnants of colored enameled bricks and similarly were found in earliest Egyptian, Babylonian tombs and even in the mounds of prehistoric Indian races in Central America.

As the art of enameling developed in these various ancient countries, it



*This steel casket body and top lining, designed by J. E. Nuss, Cleveland, Ohio, serves to offer some idea of the design possibilities for the all-steel porcelain enameled casket.*

was found that ground up glass-like substances mixed with color and fused and fixed by fire, first on pottery and later on metal, became an art as civilization advanced. Probably early Asiatic people learned to work with metals and glass, and the art of enameling gradually developed. To them is accredited the earliest development and the old enameled pieces of jewelry on copper of Asiatic, Grecian, and others originated by various races of people, may be found in the leading museums of the world.

Homeric graves include bronze sword blades richly inlaid in gold and silver, set in a non-metallic substance with hard paste which seems to have been fired and produced in various colors, generally blue, which are said to have been made prior to 1400-1200 B.C. The British Museum has specimens, from very early periods, of brooches, pins, rings, armor, bronzes, shields, etc., all containing multi-colored enamels. It is not at all strange that practically all of these

subjects are excellently preserved, particularly where any metal is coated with even the early types of decorative enamels.

The art became so universal that practically every civilized country had produced very fine specimens of work, particularly France, Italy, Syria, Algiers, Albania, Spain and China. The significant characteristic of all this art is its universal permanence and we may be assured that it will be handed down for ages to come.

#### **Early enamel casket**

The Enameled Reliquary of Banares (2) contains one of the largest enameled caskets in Spain. At the time its description was written it was in the possession of a little church in Banares near Logrono. The enameling is crude but has decorative appeal. The history of the casket is unknown, but it was seen and described in 1610 by Manuel Risco. The casket has an oblong shape and sloping roof; enameled panels are fitted together over a frame. All panels except the front have a mere

decorative design. The technique of the enamel is *champleve* on copper and it is done in opaque colors of white, light blue and red. The casket is dated in the 14th Century since the same crude enamel colors were found on many crosses dated late in the Middle Ages.

Porcelain enamel has been extensively used in mourning jewelry. (3) The use of *black enamel* in rings was much in vogue in England, *white enamel* being frequently substituted in the case of a child or young person. Some of the *brooches* of the 18th century are very fine in workmanship. They frequently contain as part of the design a miniature painted on ivory, representing an urn with a figure (sometimes a portrait of a bereaved husband or wife) weeping over a tombstone, with the usual accompaniment of willows and the like. Small seed pearls were very often introduced as an enrichment, and for the value of their symbol of tears.

#### **Coffins of glass**

Herodotus, in describing Ethiopian

coffins (4) says: "The body is placed in a crystal block which has been hollowed out (crystal was abundant in Ethiopia and was a type easily worked). The body could be seen through the block and there was no unpleasant odor." This was early evidence of the desire to hermetically seal the coffin.

Glass coffins were patented in England in 1849 and were used also by the Egyptians over 2000 years ago. A patent was issued in 1868 for slate-slab coffins united by metallic corner pieces and bolts.

#### **Development of porcelain enamel on metal**

The first real progress in enameling on metal is agreed to have taken place at Byzantine (Now Istanbul) closely associated with Persia. The Persian influence is evident. Byzantine influence is widespread. The growth was very rapid, especially after the 6th century. It is difficult to trace enamel history in the East. There is little likelihood that it was practiced in China before the Mongolian Invasion in the 13th century. Early specimens were crude. Probably in the middle of the 14th century to the 16th century it went from China to Japan where it was developed considerably, as well as in India. Before the 15th century enameling was used chiefly for jewels and insets. Exact information about the origin of applying enamel as paint and melting onto metal is not known.

Porcelain enamel was first applied commercially on sheet iron and steel in 1850 in Austria and Germany. The lack of good, pure, cheap raw material was an obstacle to the advancement of enameling. The very important technology of steel was not developed as yet. Enameling did, however, receive a boom with the discovery of LeBlanc and Solvay soda processes.

Later the use of clay and addition agents to keep powdered enamel in suspension in water helped to make it adhere to metal when sprayed or dipped and dried before firing. The spray gun development greatly aided the wet process for vitreous enameling steel. The advancement in the

sciences of engineering, chemistry and physics helped to develop porcelain enamel into a fast expanding modern industry. Acid resisting enamels of great strength and permanence have more recently been devised. The permanence of porcelain protection depends in a large degree on its inherent chemical resistance to corrosion under conditions of usage.

#### **The factor of environment**

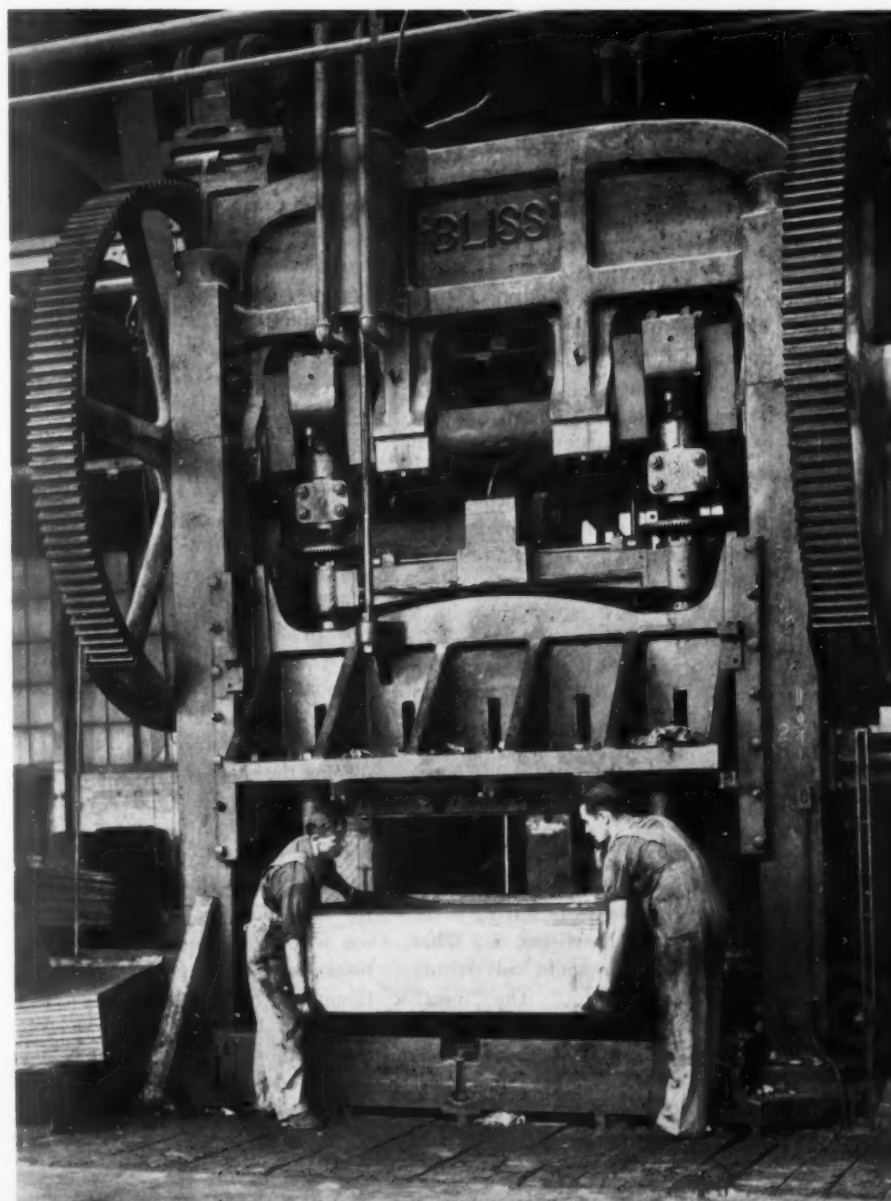
Speller (5), in his classic discussion of Prevention of Corrosion Underground, defines the ideal protective coating as "strong adherence to the metal; good electrical resistance,

freedom from pinholes (cracks or crazes), resistance to action of alkaline or acid ground waters; should not crack or leave the metal under impact and pressure and should resist a reasonable amount of abrasion in handling." Properly designed substructures fabricated from modern enameling steels is a *must requisite* to a successful long life porcelain finish.

The Bureau of Standards has made exhaustive comparative tests of 47 types of U. S. soils nationwide over a period of ten years on the underground corrosion (pitting) of commercial iron and steel with respect

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*This mammoth press is used for notching, trimming, flanging and sizing bath tubs and similar deep drawn products. It is in such equipment as this that the steel casket would be fabricated.*





# The how and why of sign advertising

By Ken M. Davee • DAVEE, KOEHNLEIN AND KEATING, CHICAGO, ILLINOIS

## PART VII • Selecting the sign material



In the promotional catalog of almost every large sign user, you can find signs made of half a dozen materials. One electric appliance manufacturer has ten dealer signs. The featured sign is the company's permanent dealer identification sign of porcelain enamel. At the bottom of the list is a current "new model" announcement banner of water-proofed fibre.

Each of the materials used in this ten-sign assortment has a definite purpose.

When used for its intended purpose, each material will probably prove to be most economical. For its 30-day usefulness the fibre banner is far and away more economical than any metal sign, while for permanent dealer identification on a national basis there is no material so practical as porcelain enameled metal.

A sign buyer who buys a material that will last longer than the particular sign usage requires is more likely to make an economical purchase than a buyer who buys a material with a life shorter than may be required. In other words, if you can not be sure of the length of sign life you need for a particular purpose, you will be more likely to make an economical purchase if you lean to the side of the better sign.

### Buy the most for your money

In choosing a sign material the guiding principle, as in buying every other kind of advertising, is: What will give you the most advertising for the money spent? The "most" advertising refers to quality as well as the quantity of impressions. Quality is, of course, of great importance.

To create a good reputation for the advertiser, signs must make a good impression. The erection of signs that soon become shabby, faded and warped, and thus associate the advertiser's name with disreputable appearance, is nothing but the sheerest waste.

Leaving the general suggestion now, let's give attention to the questions that you will want to answer in determining the type of sign that should be bought for a specific purpose:

### 1. How long is the sign likely to be in service?

*The cost of sign advertising ordinarily decreases with the length of the individual sign's life.* That is, a sign with a ten-year life will cost substantially less per year than a sign with a scant five-year life. Similarly, a sign that will last three years will cost substantially less per year than a sign with a one-year life.

It follows, then, that it will cost less per year to identify a dealer for ten years with one sign lasting ten years than with two signs, each of which has a life of five years. The cost of the sign alone will be less per year of advertising value as the longer-lasting signs are purchased. And when you add the increased distribution and erection costs of replacing the short-lived signs, the durable signs are far and way better investments.

Experienced sign users, therefore, buy the sign with the maximum life for their purpose. That is one reason why most chain store organizations such as Montgomery Ward and Company; Scott Stores; Sears, Roebuck and Company; Western Auto Stores; the five and ten cent chains; IGA; Red and White; and dozens of

others use porcelain enameled store identification signs. That is why most manufacturers selling through dealers, such as Chevrolet, Studebaker, The Chrysler group, Norge, Kelvinator, Stewart-Warner and literally hundreds of others, use porcelain enamel for their major dealer identification sign. Whatever other sign materials they may use, for the one dealer sign that constitutes the backbone of their identification program by far the large majority of companies use porcelain enamel. It gives them the most effective advertising for the longest time.

### Effect of dealer turnover

#### on sign program

While most sign users agree that signs with the longest life are the most economical per year of advertising value, some of them sacrifice the economy of signs with maximum life because they (1) feel that their dealer turnover is too high to justify a sign with such a life, and (2) they think that their sign copy will become *obsolete* before the complete value of the sign is obtained.

Casual consideration of dealer turnover may lead to the conclusion that you should buy signs with a life no longer than the average dealer's association with your company. That is, if your average dealer turnover is once every three years, you should buy signs that will stand up for approximately that period. Then, the theory is, when the dealer discontinues your line, the identification sign will have served its purpose and you will have bought the most economical identification possible.

In theory, that appears to be a sound procedure. But look at the facts. Take the case of the accessory manufacturer with 30,000 dealers to





identify. In 1937 he had an abnormally high turnover for his organization of nearly 10,000 dealers. At that rate, his entire organization turned every three years and the average life of each dealer was just that long. Should he buy signs with a three-year life?

#### Better dealers stick

Faced with that question, he looked at the records a little more closely. He found that 5,000 of the 30,000 dealers did more than half of the business. He examined the turnover among these selected 5,000. And he found that their turnover was substantially less than it was for the company as a whole! That is, they tended to stay with his organization much longer than the average three-year period.

He could spend more money on their identification and sales promotion. They were his backlog dealers—the ones who not only furnished the bulk of his business but the bulk



*"A modern curved sign of . . . porcelain enamel . . . appears on the nose of the Burlington Route's streamliners, the Zephyrs. This was the material selected by the engineers to withstand the constant abrasion and vibration encountered at high speeds." Top photo shows the Texas Zephyr with the Houston skyline as a background. Circle shows train speeding through a sign marking the 8,000,000th mile for the Zephyr fleet.*

of his profits as well, because they required the minimum of re-selling and extra service. Moreover, a second 5,000 dealers were also above the average in both sales and turnover. In other words, the rapidly shifting dealerships were largely concentrated in the least important one-third of all his dealers. The upper third represented exceedingly little shifting.

His identification problems as far as stable dealers were concerned were solved. He could furnish economical long-life signs to them. But what about the others?

This question was ably answered by another sign buyer.

### Salvage your signs

"Why give all this attention to buying signs that last no longer than the average dealer anyway?" he asked. "Did you ever see a major company issue a dealer sign contract that didn't provide for salvaging the sign as soon as the dealer quit handling a line? They all do and the reasons are simple enough, it seems to me. You don't want your signs on a dealer's store after your product is no longer on his shelves. You want it down, and if you take it down you can move it to another store and put it up again. That's what we do. We make a deal with the dealer for the unused value of the sign (he pays something for it originally) and we take it down, wash it off, and ship it to a new location where it's put back in place again. Buy the sign that will give you the most for your money and move it when necessary; that's our policy."

The larger tire companies for a number of years had an agreement that facilitated the salvage of dealer signs. When a tire dealer gave up one line of tires he usually took on another line. When the sign crew came to put up the new signs on a dealer's premises, they carefully removed the other tire company's signs and returned them. Such signs were cleaned and polished and erected at new locations. This reciprocal service was responsible for the salvage of many thousands of dollars worth of signs annually.

A specialized organization isn't

necessary to salvage signs on a small scale, of course. If your salesmen either erect your signs or supervise such erection, they can also salvage them from ex-dealers. If you employ a local sign erection and maintenance company to handle your work, they can take care of the removal of signs when dealers discontinue your line.

Aside from the salvage value of signs, you want to remove them anyway to prevent embarrassment once a dealer no longer handles your line. One of the larger paint companies found that dealers would plead for the display of the sign until all of the advertiser's brand of paint had been sold. The sign would be left in place and no more notice taken of it until some other dealer in the same vicinity would complain that the ex-dealer was still displaying the sign and bringing in customers with it, even though he had no paint of that brand at all. Thus, the good will of both dealer and customer are lost by leaving a dealer sign in place after discontinuance of the line.

Another danger of not salvaging signs is that they become *negative* advertising. If they are inexpensive signs, they will rust, fade and warp, and will associate your name with disreputable raggedness. Moreover, leaving disreputable signs in place tends to sour store keepers and building owners on signs and destroys the good will of sign advertising generally. That is one of the costs of putting up signs with a comparatively short life. Unless they are inspected from time to time and the unsightly ones replaced, they tend to work a hardship on all sign advertisers.

### Economy of sign copy that is always timely

By planning your sign copy so that it is always applicable, you can avail yourself of the economy of the signs with five to ten years of service. How this may be done was indicated in Part V on sign copy. That successful selling copy doesn't easily "wear out" is illustrated by the results of mail order advertising. Once a mail order advertiser finds a headline that produces results he uses it year after year. E. J. Heimer, vice president

of the Barrett-Cravens Company, Chicago, said his company used one particular sales letter for nineteen consecutive years. Dozens of other letters have been tried meanwhile, but none of them approaches the results of his veteran 19-year old letter. Moreover, he has sent the same letter to the same list, as often as four times a year. His results show that this repetition—the kind of advertising that signs give you—produces excellent results.

The leading service station operators test to find the *single selling phrase* that sells the most oil changes, and the one selected is employed for months and years. Even the soft drink fountain operators, following the tested selling phrases of expert Elmer Wheeler, use a brief standard solicitation to increase sales of Cola and malted milks.

The first principle in selecting a sign material is to plan your sign in such a way that it will perform its function for the longest possible time, and then you can buy the more economical long-life signs.

That brings us to the second question to be asked in determining the selection of a sign material.

### 2. What effect is desired

The desired effect may determine the selection of a sign material over and above the life desired. That is, there are instances where you can afford to buy a sign that otherwise might not be the most economical because it gives you a better advertising effect than less-expensive materials.

For instance, take the case of sign advertisers in the food field, such as the Hydrex Ice Cream Company in Chicago. Here is an advertiser that makes use of a ten-year *porcelain enameled* sign even though the copy is changed as often as once every three years. The reason is simple. The highly-finished, clean-looking surface of this material gives the advertisers the bright, sanitary appearance they want their signs to have. Such a surface creates the impression of superlative cleanliness which they want to convey to their customers and prospective customers. The adver-

tising value of that sort of an impression is worth so much to them that they buy the better material.

All types of business whose success depends so much on creating an impression of cleanliness can not afford to risk their reputations with anything but the cleanest-appearing signs possible. Included in this group are groceries, bakeries, delicatessens, meat markets, drug stores, confectioneries, dairies and restaurants. Leaving the retail food field, other purveyors of cleanliness includes hotels,

ator and build business and good will for their owners because of it.

To get an appreciation of the full importance of appearance in selling food, take the case of a large New York dairy when they first began transporting milk in bulk by truck.

The truck adopted for the trial was of a type designed for hauling petroleum products and was painted a practical dull gray. Executives soon noticed that employees began talking about the truck. They didn't want any milk out of "that" truck. The

signs of the country's largest paint manufacturers are porcelain enameled.

The effect desired, therefore, is the influential factor in the selection of some sign materials. Another factor you will want to consider is this:

### 3. Do your reproductions require colors and design difficult to reproduce and hold?

Today sign-making skill and equipment have progressed to the point where you can get practically any effect you want in almost any material. In only a very few cases will you be unable to get the reproduction you want in the material of your choice. But permanency of color is another matter.

Some colors tend to fade more rapidly than others. The relative permanency of various colors was given in Part VI. Here, just a few examples of what sign users have encountered on this score will be enumerated.

The Independent Grocers' Alliance (IGA food stores) during the early years of their organization selected a particular shade of blue as the background for all of their identification. It happened that this particular shade of blue, which gave them the desired effect of cleanliness and sanitation, also was a fugitive color—a color that tended to fade rapidly when exposed to sunlight and weathering.

IGA signs, during those early years, were painted at a centrally-located plant, first on wood and later on metal. Complaints that the color faded came in at once and, to some extent, threatened the existence of the growing organization because grocers became so dissatisfied with them.

Finally, IGA turned to *porcelain enamel*. Fading, of course, caused no more trouble. And by pooling orders and buying signs in quantity, they later reported that they were paying no more for *porcelain enameled* signs than they formerly paid for their painted metal signs with wood backing.

The quality of reproduction and  
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*"For all signs that are to be used along the sea coast porcelain enamel has been the standard for many years. It is practically impervious to the effect of salt water and brilliant sun."*

laundries, barber shops, beauty parlors, service stations (rest rooms), and manufacturing plants engaged in the production of foods and drugs, and any other items for personal or home use.

The immediate impression of an advertiser who uses any type of sign that doesn't have a thoroughly clean appearance will not be conducive to the sale of any item for personal or home use. On the other hand, a brilliantly clean and sparkling sign will have a strong positive effect.

#### Gleaming white trucks

Realizing the advertising advantages of sparkling, clean white trucks, certain alert bakery and dairy operators have finished their truck bodies in *porcelain enamel*. These trucks appear on the streets as gleaming and clean as the inside of a new refriger-

commercial research department was directed to check into the seriousness of the objection among average milk users. They found that most people clung to the feeling that milk should be transported in bulk in white or light colored equipment only. A change was recommended. Cleanliness in milk calls for plain white equipment in the minds of most of us. Such is the importance of color in selling.

Another situation where the effect determines the choice of material regardless of other factors, is that of the paint companies. A paint manufacturer sells two benefits when he sells paint: preservation and color. He can not afford to represent his product with a sign that isn't well preserved or one that doesn't have brilliant, clear, unfading color. For this reason, you will find that many



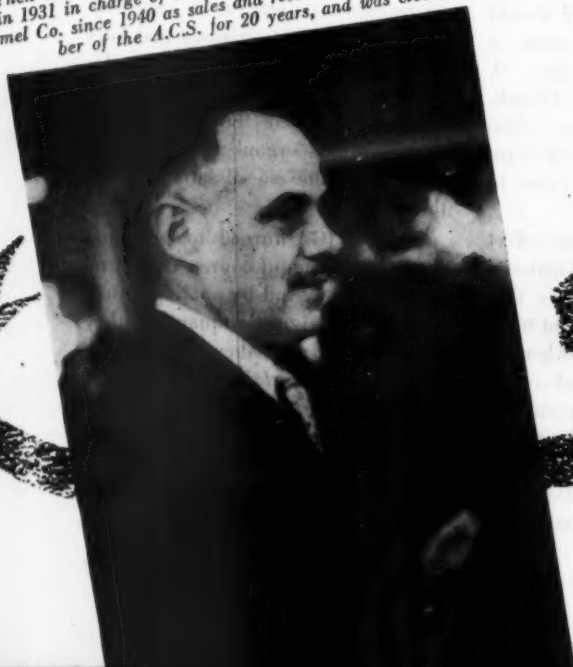
**D. D. WHEELER**—"Dan" got his early contact with porcelain enameling working in the Armco research department, and had practical enameling experience as plant superintendent for Erie Enameling Co. He joined the Titanium Alloy Mfg. Co. organization as development engineer in charge of eastern sales in 1935, and is now devoting full time to development and sales of Tam's zirconium products. "Dan's" hobbies are said to be photography and his two sons.



**O. J. HEYER**—the president and gen. mgr. of Chattanooga Stamping and Enameling Co., is known to all those active in industry activity. Many years in production and plant management preceded his present position. At the age of 13, after leaving grammar school, "Otto" became associated with Nesco at Granite City, where he started in the pickling department. He followed through various positions to become factory mgr., a position which he held for 10 years prior to going to Chattanooga as asst. to the pres.

## PEOPLE YOU KNOW

**H. L. COOK**—Graduated from U. of I. with a B.S. degree in Ceramic Engin. Early experience included work at Columbian Enameling & Stamping Co., and ceramic engineering work with Ingram-Richardson Mfg. Co., Beaver Falls. Then to Frigidaire as cer. eng. in charge of porcelain processing—to Norge in 1931 in charge of the porcelain enameling plant. He has been with O. Hommel Co. since 1940 as sales and research engineer. "Herman" has been a member of the A.C.S. for 20 years, and was elected a Fellow in 1931.



**F. W. KNECHT, JR.**—The sales mgr. of Youngstown Pressed Steel Div., Mullins Mfg. Corp., took time out from learning to be an engineer in 1931 to take a job with Y.P.S., and has been with them ever since. "Frank" was graduated from U. of Pa. with a B.S. degree in Mechanical Engineering. At the Warren Plant he was first file clerk. Then, after a succession of "step-ups" in sales and advertising positions, was made sales mgr. of the Kitchen Dept. Frank says his ambition is for a job requiring six months every year fishing.



**GOLDTHWAITE**—As chief engineer for Rutenber Electric Co., Marion, Ind., manufacturer of electrical heating and cooking appliances, "Bob" is concerned with problems pertaining to ceramic finishing. He graduated in Mechanical Engineering at Purdue in 1922—tried his hand at power plant engineering, school teaching and refrigeration—later joined the Engin. Dept. Servel. In 1927 he joined Rutenber as asst. supt., and in 1935 was appointed to his present position.



**R. L. FELLOWS**—"Rog" followed his high school work in the home town (La Grange, Ill.) by work at the University of Illinois, where he earned his B.S. degree. He joined the Chicago Vitreous organization in June, 1924, and has done research work on enamels and ceramic coatings since that time. He is now asst. director of research. He is a Fellow in the A.C.S., past chairman of the enamel division and is active in other industry technical activity. He is a member of Sigma Xi, honorary scientific fraternity.

OR  
SHOULD  
KNOW

# Strictly Candid

**H. E. NICKERSON**—is well known to the furniture trade in New England where he was salesman for Glenwood Range Co. for 15 years. He was appointed sales mgr. in 1940, and in '42 was made a director. Following Pearl Harbor "Nick" devoted all his time to war contracts. Since the company has again started range production he is busily engaged in securing Stove Purchase Certificates and orders. It is said his diversions include the game where aces back to back are "real good paper."



**H. H. WINEBURGH**—as pres. of Texlite, Inc., "Harold" Wineburgh is keenly interested in metal fabricating and porcelain enameling, and is active in sign industry activity. He has been president of United Advertising Corp., of Texas since 1937; is regional director of war activities of the Outdoor Advertising Assn.; a director of Outdoor Advertising, Inc., and Outdoor Advertising Assn. He is also a director of the P.E.I. In his spare time he manages to attend P.E.I. meetings.

## Tappan announces post-war expansion program

**F**ORESEEING an early end of the European war, officials, engineers, development technicians and research men of the Tappan Stove Company are planning for a post-war expansion program with the prospects of doubling production.

Included in the post-war program is an expansion project that will cost close to a million dollars with possi-

bility of branching out into other production lines. The developments of "other lines" are in their embryonic stage and remain a company secret.

Officials of the company are dubious of any revolutionary change in ranges immediately following the war. That radical changes will be made is an idea that will take years to develop

and present to the public, according to W. Hubert Tappan, vice president of the company.

Elaborating on the above, the Tappan executive explained that limitations on manufacturing materials, lack of time in which to install new equipment and most important of all, educating the public to acceptance of radically changed products, are the determining factors in prolonging the streamlined post-war products.

"A public that has been deprived of new stoves and other household appliances is going to be so hungry for new products after the war that in order to meet the consumer's needs, manufacturers will turn out products similar in design to those we bought before the war," Tappan said.

"To pioneer in the field of selling theories, to try new methods, might prove very expensive — even disastrous," the vice president commented. "It is preferable to do what we did pre-war, only determine to do the job better and more intensively."

Tappan officials believe there are many improvements to be made in ranges and kitchen equipment to lighten the burdens of the housewife. The company's development department is working on some of them now. One is a means of providing better kitchen ventilation needed par-

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*Sue Cline and Florence Windecker test different food recipes to speed the work of the housewife.*

*Tappan's advisory group on post-war planning: Standing, left to right: John G. Hoff and M. B. Kubie. Sitting, left to right: Miss Florence Windecker, Dennis Miller, Clarence Ullrich, Charles Mayer, W. Hubert Tappan, William Bauer, Earl Pollock and Mrs. Florence Hager.*



# NEWS

**T**HE Department of Ceramic Engineering at the University of Illinois announces that it is continuing to offer complete undergraduate and graduate curricula. Registration of Freshman students and all graduate students is scheduled for October 7-10. Sophomore, Junior and Senior students will register on November 2. Registration has been planned to synchronize the upper classmen's program with that of the Navy V-12 program.

The University reports extensive changes in the layout of the Kiln House where the equipment has been grouped according to the various branches of ceramics. The number of smelting furnaces has been increased, and an additional laboratory rotary smelter ordered. A new Hoskins electric furnace with complete control equipment has been installed.

Other new equipment includes a Glo-bar furnace, a new viscosity apparatus and a Taber surface abrader.

A heavy program of cooperative research work was reported by the Department, including continued work on two Government research investigations, one sponsored by the Army Air Forces and the other by National Research Defense Council.

Foreign enrollment in the Department of Ceramic Engineering includes:

#### *Undergraduates:*

Haraldur Asgeirsson from Iceland

Jorge Guardia from the Republic of Panama.

#### *Graduates:*

Pociano Montemayor from Monterrey, Mexico

Wen Te Yu from China.

#### **Sign company among first to receive "spot authorization" for production**

First approvals for civilian production under the recently-issued "spot authorization" order have been announced by W.P.B.

The Electrical Products Consolidated of Spokane, Washington, a Group II WMC labor area, was in the first list released, having been authorized to manufacture metal signs. Electrical Products are manufacturers of neon signs.

#### **Dr. Paul A. Huppert, from Czechoslovakia, joins Lisk Mfg. Co.**

Word comes to *finish* that Dr. Paul A. Huppert, formerly connected with enameling companies in Czechoslovakia and in France, is joining the organization of Lisk Manufacturing Co. Ltd., Canandaigua, New York, where he is to have charge of enameling activities.

Dr. Huppert, a Czechoslovak citizen, is a graduate chemist and has a Ph.D. degree from the Charles University in Prague. He was works manager of the Czechoslovak

"Sphinx" United Enameling Works Ltd., a company operating eight plants, for twelve years. He left his country a few days before "Munich" and became Directeur des Emailleries des Etablissements JAPY Freres in France, said to be the largest Enamelled Kitchenware concern in France.

In conversation with your reporter, Dr. Huppert described briefly an adventurous escape from the southern end of the Maginot line (Territoire de Belfort) where Japy's main factories were located—through France and then to the United States by way of Marseille, Spain, Portugal, and Havana. After arriving in this country a year and a half ago, he became connected with the Bellaire Enamel Company.

He is currently starting in his new position at Lisk.

#### **Former Mullins employee decorated many times**



Tech Sergeant Thomas Urmson, formerly employed by Mullins Manufacturing Corporation's Warren plant, is one of the company's most decorated servicemen. He is wearing, left to right, the Silver Star, the Flying Cross, the Purple Heart and the Air Medal with three oak leaf clusters.

Sergt. Urmson is a gunner in a fortress and has been wounded once. At that time his ship was lost by enemy action. The sergeant has a father and brother working at the Mullins plant, both veteran employees, and he himself wants to return as soon as the war is over.



### "Father of the electric range" dies at 71

George A. Hughes, founder and chairman of Edison General Electric Appliance Company, Chicago, died September 9 in St. Lukes Hospital, Chicago. Services were held September 12 at the First Presbyterian Church, Riverside, Illinois.



As a young man Hughes attended the University of Minnesota, and after graduation worked for newspapers in Fargo and Bismarck, North Dakota as a reporter. Later he joined with his father and brother to form the first electric companies. Later he sold his interest to his brother, but continued his interest in the electrical industry. He is referred to by many in the industry as "the father of the electric range", having organized the Hughes Electric Heater Company in 1910 to manufacture the first commercially sold electric ranges. In 1918 he directed a merger that resulted in Edison General Electric Appliance Company, where he continued as president.

He was a founder of the Century Club, Coral Gables, Fla., a member of the Union League Club, Chicago, and the Lotus Club, New York.

### Philco active in Mexico

Opening of new Philco service facilities of the most modern type by Philco, S.A., exclusive Philco distributors in Mexico City, has just been announced by Dempster McIntosh, president of Philco International Corporation. Mr. Ralph E. Chaplin is

president of Philco, S.A., which will distribute Philco refrigerators, radios, air conditioners and other company products throughout the Federal District of Mexico and in several adjoining States.

George Armstrong, formerly chief cabinet engineer for Kelvinator, Grand Rapids Division, has joined the organization of Ditto, Inc., Chicago, as works manager.

### Electric sign standards drafted

Specifications for the National Electric Sign Association "Electric Sign and Service Standards" were completed recently at a meeting of committee chairmen held in Cleveland. Establishing of the standards was the result of several months intensive effort on the part of several committees to complete the first phase of this long range program to improve services rendered sign users and help increase business for the electric sign manufacturer.

The project was developed by the Standards Committee, under the direction of Lew Carroll, chairman, to simplify methods used, improve methods and efficiency in sign production and establish standard practices for maintenance and repair services.

A draft of the complete standard is now being compiled by N.E.S.A. and will be submitted to the membership for consideration and approval.

### Sixth daughter arrives at "Gene" Howe home

Linda Gail Howe was born August 23rd at St. Anthony's Hospital, Chicago, weighing in at 5 lb., 2 oz. Linda Gail is the sixth daughter in the Howe household.

Mr. Howe is ceramic engineer at Chicago Vitreous Enamel Product Company, Cicero, Illinois.

### The George Condos' have new son

*Finish* learns of a new bright spot in the home of George S. Condos, Tappan Stove Company, Mansfield. The baby's name is Stephen Wayne — for the father's middle name, and the grandfather's first name.

### Stove manufacturer enters oil business

The list of new entries in the oil business during the last year has offered many surprises, including nationally known manufacturers of items ranging from beer to Tommy guns.

One of the latest reports concerns the entry of O'Keefe & Merritt Company, Los Angeles, California, peacetime manufacturers of gas ranges. O'Keefe & Merritt, together with the Reserve Oil and Gas Company, are reported to be starting drilling operations on the Tejon (Tahone) ranch in Kern county.

### Chester elected head of Globe Corp.

Alden P. "Ike" Chester was elected president of the Globe Corporation, and W. Dow Harvey was elected chairman of the board of directors



FINISH PHOTO

at the recent annual meeting of the board.

Mr. Chester has, for several years, served as vice president of the organization and general manager of the Kokomo plant. He attended Dartmouth College and Indiana University, leaving Dartmouth during World War I to serve in the U. S. Army as a second lieutenant in the 389th field artillery.

His early experience was in a Boston bank. He became interested in the stove business when he was appointed New England representative of the Chambers Manufacturing Company, Shelbyville, Indiana. In 1928 he became sales manager of the com-

pany and moved to Indiana. In 1930 he took the position of vice president of the newly formed Globe American Corporation of Kokomo, a consolidation of the Globe Stove and Range Company and the McComb Steel Products Company of McComb, Illinois. He was made general manager of the Kokomo Division in 1935, and elected a director of the Corporation in 1938.

In the present war the company has earned an enviable reputation as a builder of steel lifeboats and life-rafts, having received three "M" awards from the U. S. Maritime Commission.

In addition to his executive position with the Kokomo plant manufacturing gas and electric ranges, "Ike" Chester served three terms as president of the Institute of Cooking and Heating Appliance Manufacturers, and is now chairman of the organization's Gas Range Manufacturing Division.

#### Paul Potter gets Army promotion

Paul H. Potter, formerly of Tuttle & Kift, Inc., Chicago, has two reasons for being a happy service man. He now has the commission of Major and a new baby girl at home.

Paul volunteered for Army service in February, 1941. He was later executive officer for the 491st Quartermaster Battalion, and was later transferred to Fort Warren, Arizona. He recently crossed the "pond", after which he was promoted from Captain to Major.

The proud grandfather of the new baby girl, Donna Suzanne, is D. B. (Don) Kift, vice president of Tuttle & Kift.

#### Mockrin to Battelle Institute

Announcement comes from Battelle Memorial Institute, Columbus, Ohio, that Isadore Mockrin, formerly with the National Bureau of Standards, Washington, D.C., has been appointed to the Institute's Research Staff, and assigned to its division of ceramic research.

Mockrin holds a Bachelor of Science degree in chemical engineering from the University of Pennsylvania

and has attended George Washington University. He is a member of the American Chemical Society and the American Ceramic Society.

#### Lansdale Porcelain replacing building destroyed by fire

A section of the plant of Lansdale Porcelain Enamel Corporation was destroyed by fire on July 8. Damage was estimated at \$25,000. Fortunately the section destroyed was one of the oldest parts in the plant, housing a standby furnace, part of the sheet metal shop and the pickling room.

A new section of the plant, constructed in 1937, was not damaged.

According to J. M. Krupp, Jr., president, the debris was cleaned away and the plant was back in operation, including the pickle room, sans roof and walls, within thirty hours of the firemen's departure.

The new building under construc-

tion will be completely fire-proof and will include a new and enlarged pickle room.

#### New Westinghouse air conditioning appointment

The appointment of William A. Minkler as application manager for air conditioning of the Westinghouse Electric Elevator Company has been announced by Ross Rathbun, the Company's manager of air conditioning.

When Westinghouse started production of air conditioning apparatus in 1931, Mr. Minkler, a graduate of the California Institute of Technology, immediately became identified with this activity. From 1941 to 1944 he was air conditioning sales manager of the Young Radiator Company, returning to Westinghouse this year.

#### Westinghouse Lighting Division gets "E" award

The Cleveland Lighting Division of the Westinghouse Electric and Manufacturing Company has received the Army-Navy "E" Award it was announced by Wilfred F. White, Division manager.

The Cleveland plant has been producing searchlights for Navy ship-board use, landing field lights and floodlights for military and civil airports, and a variety of other lighting equipment for the armed services.



Representatives of labor, management, Army, Navy and the community displayed the Army-Navy "E" flag at ceremonies at the Cleveland Lighting Div. of the Westinghouse Electric & Mfg. Co. as the plant received this production award. Left to right they are: Rear Adm. Wat T. Cluverius, U.S. Navy, retired; Sterling Graham, Gen. Mgr. of the Cleveland Plain Dealer; Col. Earl F. Baskey, Army Air Forces; John Janidlo, Pres. of Local 777, U.E.R.M.W.A.; and W. F. White, Plant Manager.

### **Cowles Detergent appointments**

The Cowles Detergent Company, Cleveland, Ohio, announces the appointment of two representatives in the Ohio and Western Pennsylvania territory.

Charles W. Churchill is technical engineer for Northeastern Ohio and Western Pennsylvania, while Clyde E. Lowe will represent them in Cleveland and Northwestern Ohio.

### **Joe Volzer dies**



FINISH PHOTO

*Finish* regrets to announce the death of J. M. Volzer, well-known contact man for Republic Steel.

Born in 1893, Mr. Volzer graduated from the Canton Central High School class of 1915, and then attended Ohio State University, graduating in 1920 as a Chemical Engineer.

He immediately went to work for Stark Rolling Mill Company, a predecessor of Republic Steel Corporation, and has been employed by Republic ever since.

Mr. Volzer passed away at Evansville, Indiana, August 23, as a result of a heart attack. He is survived by his wife, Florence Marburger Volzer, and four children.

### **Norge features distributors and dealers in current advertising campaign**

In anticipation of a quickened reconversion pace as the European phase of the war nears its end, and consequent increased consumer goods output, the Norge Division of Borg-

Warner Corporation will attempt to focus consumer attention on its distributors and dealers throughout the nation in its fall newspaper and outdoor advertising campaign, according to M. G. O'Harra, vice president in charge of sales.

The advertisements will appear in 185 newspapers in 126 cities while posting in 118 municipalities will be employed. The campaign started in September and will continue through November in distributor and dealer points.

Under the caption, "Ready for Today," it is disclosed for the first time in newspaper advertising that Norge dealers now are making delivery of new, standard quality "streamlined gas ranges" to those with Office of Price Administration certificates. At the same time, it is emphasized that Norge is "Ready for Tomorrow" — the tomorrow when the company again will be manufacturing other "products of experience" such as refrigerators, electric ranges, home

heaters and washing machines.

Commenting on the campaign, Mr. O'Harra said, "Certainly, with top-ranking military authorities predicting an early end to the European phase of the war, it is in the public interest that manufacturers keep the consumer up to date on their plans for the reconversion period and that which will follow. We at Norge want the public to know that we are planning as seriously for peace as we are now working for war."

### **Locke Insulator chairman dies**

Mr. Frank H. Reagan, Chairman of the Board of Locke Insulator Corp., Baltimore, Md., died suddenly on September 10, at the age of 71. Mr. Reagan, a well-known figure in the insulator field, joined the Locke Insulator Corp. in 1917 as vice president and general manager, and was successively president and, for the past four years, Chairman of the Board of that organization.

## **All the comforts of home in Normandy**



All the comforts of home — on the Normandy fighting front. Lt. Jack Adam, adds "something" to the ice cubes from the "brand new 1942 Norge refrigerator" which graces the officers' club of the 494th fighter bomber squadron. Adam, a former salesman of the product for the Arnold Wholesale Corp., Cleveland

distributors of Norge appliances, has no idea "how it got there and how we managed to get it for our bar . . . just a short time after D-Day." In fixing up their club, which is complete with fluorescent lights and radio, the boys got a large tent and built a bar from plywood and aluminum that they found, according to



Adam who wrote R. C. Hager, vice president and general manager of Arnold Wholesale Corp.

#### **S. E. Anderson dies**

Sigrud E. Anderson, "Sig" to his many friends, head of the New Monarch Machine and Stamping Co., Des Moines, Iowa, passed away on September 13. He had been confined to his home following an injury early in 1943, his last appearance in public being when his company received the Army Ordnance award for war production last March.

Mr. Anderson was born in Bergen, Norway, August 10, 1873. His early schooling was in Norway. He came to America when he was 18 and worked at tool and die making in Chicago and Evansville, Indiana — moving to Des Moines in 1905, where six years later he launched the New Monarch Machine and Stamping Co.

The deceased is survived by three daughters and two sons, Frank H. and Clarence S. Anderson, both officers of the company.

#### **Stoneburner has new position and new son**

It is reported that Tom Stoneburner, formerly of the enameling department of McCray Refrigerator Company, Kendallville, Indiana, is now in charge of the company's enameling plant.

Another bit of news concerns the arrival at the Stoneburner home of Tom, Jr., born September 6. The weigh-in — 6 lb., 6 oz.

#### **Alliance Ware, Inc.**

News comes to *finish* that effective September 16 The Alliance Porcelain Products Company, producers of fabricated and enameled sanitary ware and other products, has changed its corporate name to Alliance Ware, Inc.

#### **R. M. King now professor**

News comes from Ohio State University that R. M. (Maynard) King, formerly associate professor of Ceramic Engineering at the University,

now has the title of "Professor."

*Finish* desires to congratulate Professor King, who has long taken active interest in enameling problems and industry activity.

#### **International Harvester to build refrigerators for farm use**

Eugene F. Schneider, general manager of the Refrigeration Division, International Harvester Company, reports that the company expects to have a line of refrigerators particularly suitable for the farm market after the war — including low temperature units. "This plan," says Mr. Schneider, "is a natural expansion from milk coolers and large walk-in and reach-in types of refrigerators for farm family use which

were manufactured prior to the war."

The company expects to direct its initial attention to the development of refrigerator units suitable for farm usage, to be distributed through its organization of farm implement dealers. Should this type of unit prove attractive to the small town and urban markets, the company would expect to expand its distribution to these areas.

*Cooking utensils of enameled ware have been made for over eighty years. At first the base metal was made from iron and only the inside was coated, but in 1859, the Bartelmes family in Bohemia began making utensils from sheet iron.*

### **Conlon receives Army recognition**



Conlon Corporation of Chicago, peacetime manufacturers of household washers and ironers, have been awarded the Army Ordnance flag for outstanding production results on 57 mm. steel cartridge cases.

Manufacture of the cases is said to have begun when only England and Russia had the newly designed guns for using them. They were used extensively in recent Allied invasions.

After installing some sixty carloads of machinery and equipment for producing the cases, the company turned out half a million of steel, and

a similar quantity of brass.

In addition to the cartridge cases, the company is producing, or has produced, antenna fittings, storage box stampings, track guides for bulldozers, machine gun parts, bomber parts, 57-ton tank parts and heater parts for planes and Nissen huts.

The Army Ordnance award was tendered by Major J. H. Roesch of the Chicago Ordnance District, and was accepted for the employees and management by I. N. Merritt, new Conlon vice president and general manager.

Run **HARSHAW** Ground Coat

*for*



*Smooth out*

## YOUR PRODUCTION WRINKLES

● The demand for lighter applications and better appearance, coupled with today's production problems, makes it necessary to have better grounds. Cobalt Ground Coats are not spectacular but like the infantry they are essential for most operations.

Research on grounds at Harshaw has continued without interruption . . . Harshaw supplies blends that bond early and yet do not overfire easily. More than a year's production experience with these new grounds has confirmed their better overall firing range and bond.



### SEND FOR

32 page book listing Industrial Chemicals  
72 page price list of Laboratory Chemicals

**THE HARSHAW CHEMICAL CO.**  
1945 East 97th Street, Cleveland 6, Ohio  
BRANCHES IN PRINCIPAL CITIES

# News from Washington

## Enamel Ware Order L-30-b amended to permit more items

Production of several items of domestic and hospital enamel ware, previously prohibited, may now be resumed, the War Production Board reports.

Enamel Ware Order, L-30-b, as amended, permits the production of these domestic items: Colanders, baby bottle sterilizers, dish pans, infants' bath tubs, funnels and baby chambers. Each manufacturer may make baby chambers in two sizes; other items are limited to one size and one model per manufacturer.

The newly-permitted items of hospital enamel ware are: Immersion arm baths, iodine cups, forceps, jars, urinals and graduates. They are all controlled as to number of models and sizes.

Although the recent L-30-b amendment permits the manufacture of the specified items previously prohibited, it does not increase the quantity of iron and steel available for enamel ware. For domestic items, iron and steel is being used at approximately 70 per cent of the 1941 rate; for hospital items, iron and steel consumption may be up to 100 per cent of what it was in 1941, according to WPB.

## Renegotiation regulations published

The Superintendent of Public Documents has announced publication of a loose-leaf manual on Renegotiation Regulations issued by the War Contracts Price Adjustment Board. The manual initially contains approximately 275 pages and will be supplemented from time to time as the Regulations themselves are supplemented. It is available at a prepaid subscription price of \$2.00 including 12 monthly supplements.

## Stove ration order amended (Amendment 13 to order 9A)

Several changes in stove rationing regulations have been announced by the Office of Price Administration.

One of the changes sets up safeguards against alteration of stove certificates and another provides that dealers, distributors or manufacturers may endorse certificates for purchasers under certain conditions.

Explanations of the principal changes follow:

1. To prevent alteration of stove certificates, the local War Price and Rationing Boards that issue them shall indicate, by the use of a check mark, the type of stove for which the certificate is issued. As an additional safeguard, a hole must be punched in the space provided on the certificate for the type of stove for which it is issued.

2. Because persons placing orders for stoves sometimes forget to endorse them before mailing them with their orders, this action makes it possible for the person receiving an unendorsed certificate to endorse it in behalf of the purchaser if he has shipped the stove ordered by the customer to that customer. This will avoid the delay occasioned when the certificates have to be returned for endorsement.

3. This amendment makes it possible for U. S. agencies to transfer stoves, certificate-free, to manufacturers who made them, or to their successors in manufacturing. This change completes the provisions needed to permit Government-owned stoves to flow freely to consumers through normal distribution channels. A previous amendment had provided for virtually unlimited acquisition of such surplus stoves by dealers and distributors.

4. Also included in this action are provisions covering the disposition of stoves owned by persons whose applications to enter the stove business have been denied. They provide for the orderly disposition of the stoves to persons needing the type of stove owned by the applicant.

Other provisions of the amendment include a method by which errors in dealer or distributor registration may be corrected, and a list

of the records that should be kept with reference to stoves transferred and acquired.

## Contract protection for component manufacturers

In a move to stimulate production of important materials and parts needed in war production, the Procurement Policy Board, a War Production Board committee composed of representatives of WPB, the Army, Navy, Treasury Department and other contracting agencies, has published policies for the protection of manufacturers of materials and components.

The Board has adopted the following four major principles to meet the needs of this important group of manufacturers:

1. Component and material manufacturers will be encouraged to require war contractors and subcontractors with whom they deal to place orders for components and materials long enough in advance to give protection during the necessary period of production.

2. The contracting agencies will insist that war contractors and subcontractors place such orders reasonably in advance and in amounts sufficient to enable them to meet the requirements of their own contracts.

3. War contractors and subcontractors will be urged to plan the purchase, production and delivery of components on a sound basis that will insure that components and materials will be available, but at the same time avoiding the unreasonable accumulation of an inventory in advance of actual production needs.

4. Component and material manufacturers will be assisted in obtaining provisions in orders placed with them that will insure them of a fair settlement if the orders are canceled. Standard provisions of this type for use in subcontracts were recently approved by the Director of War Mobilization.

## Commercial export controls changed

The Foreign Economic Administration has notified exporters of the



forthcoming discontinuance of the program license procedure that controls commercial exports to the following areas of the world:

United Kingdom, Australia, Union of South Africa, New Zealand, India, Newfoundland, and most other British Empire Areas; the Soviet Union; the Belgian Congo; French possessions such as French Oceania, Madagascar and Reunion, French Cameroons, French Equatorial Africa, French West Indies, and French Guiana; Surinam and the Netherlands West Indies; the Middle East; and Greenland.

Beginning October 1, it will no longer be necessary for exporters to obtain release certificates from foreign purchasing missions. After that date it will only be necessary to file individual export license applications, for all commodities destined to those areas previously under program licensing, directly with the Foreign Economic Administration.

Instead of using release certificate forms for the areas formerly under program licensing, exporters will file their applications on Form 419 for all exports to all areas. Under the new set-up, the Foreign Economic Administration will issue all export licenses for these commodities direct to applicants.

Although release certificates will no longer be issued for exportations to the destinations now covered by program licenses after September 30, those certificates which have not expired as of that date will remain valid until their regular expiration date.

#### **Provide for "excess stock" transfer to "spot" civilian goods producers**

Holders of idle and excess stocks of controlled materials are permitted to make special sales to persons who have been authorized to produce civilian goods under the "spot authorization" procedure, the War Production Board has announced. This comes under Direction No. 1 to Priorities Regulation No. 13.

Persons authorized to produce civilian goods under the "spot authorization" procedure will be granted

the right to use an allotment symbol, the initial letter of which will be "Z". Persons holding idle and excess stocks of controlled materials will be able to sell them to persons having such an allotment symbol.

The buyer need not charge controlled materials bought under the new rules against any Controlled Materials Plan allotment account, officials say. Special WPB permission is not required to make such a sale to a buyer who has been authorized to use a CMP allotment symbol "Z".

#### **Rules changed for commercial refrigeration and air conditioning equipment**

Rules governing the production and sale of industrial and commercial refrigeration and air conditioning equipment have been modified by WPB.

While the basic restrictions of Limitation Order L-33, which governs this equipment, remain unchanged, the framework has been revised to permit prompt relaxations of restrictions when materials become more plentiful.

Production restrictions in the order have been modified by inclusion of a "Schedule A" giving production quotas for each type of equipment covered by the order. Those types which may not be made at the present time have been assigned a zero quota, which, when materials and parts become more plentiful, may be changed to permit production of the particular items involved.

Use of Forms WPB-2448 and WPB-2449 have been discontinued. In the future all applications for refrigeration and air conditioning equipment will be filed on Forms WPB-1319 or WPB-617, depending upon how much construction is involved in installation of the equipment.

#### **Percentage of privately financed construction showing increase**

Total new construction activity in the United States in August, as reported by W.P.B., amounted to \$316,000,000 — a 2% increase over the

previous month's level of \$310,000,000, but less than half of the \$638,000,000 volume for August, 1943.

August activity brought the total volume during the first eight months of 1944 to \$2,540,000,000, or 44% of the activity for the corresponding period of last year. Officials predicted a sharp decline the last quarter of 1944.

Construction work financed by private funds during August accounted for \$127,000,000, or 40% of the total August activity. Private work in August a year ago was only 22% of the month's total.

Construction of Government financed industrial plants accounted for \$41,000,000; and Government financed housing, \$14,000,000.

Government estimates for new construction activity in the United States for the year 1944 indicated total volume of \$3,600,000,000, or 47% of the 1943 volume and 27% of the 1942 volume. Work financed by private funds is expected to account for 39% of the 1944 total as contrasted with the ratio of 20% in the two previous years.

#### **50,000 cast iron bathtubs for fourth quarter (Direction 4 to Order L-42)**

Production of 50,000 cast iron bathtubs during the fourth quarter of 1944 has been authorized for limited distribution, the War Production Board has announced.

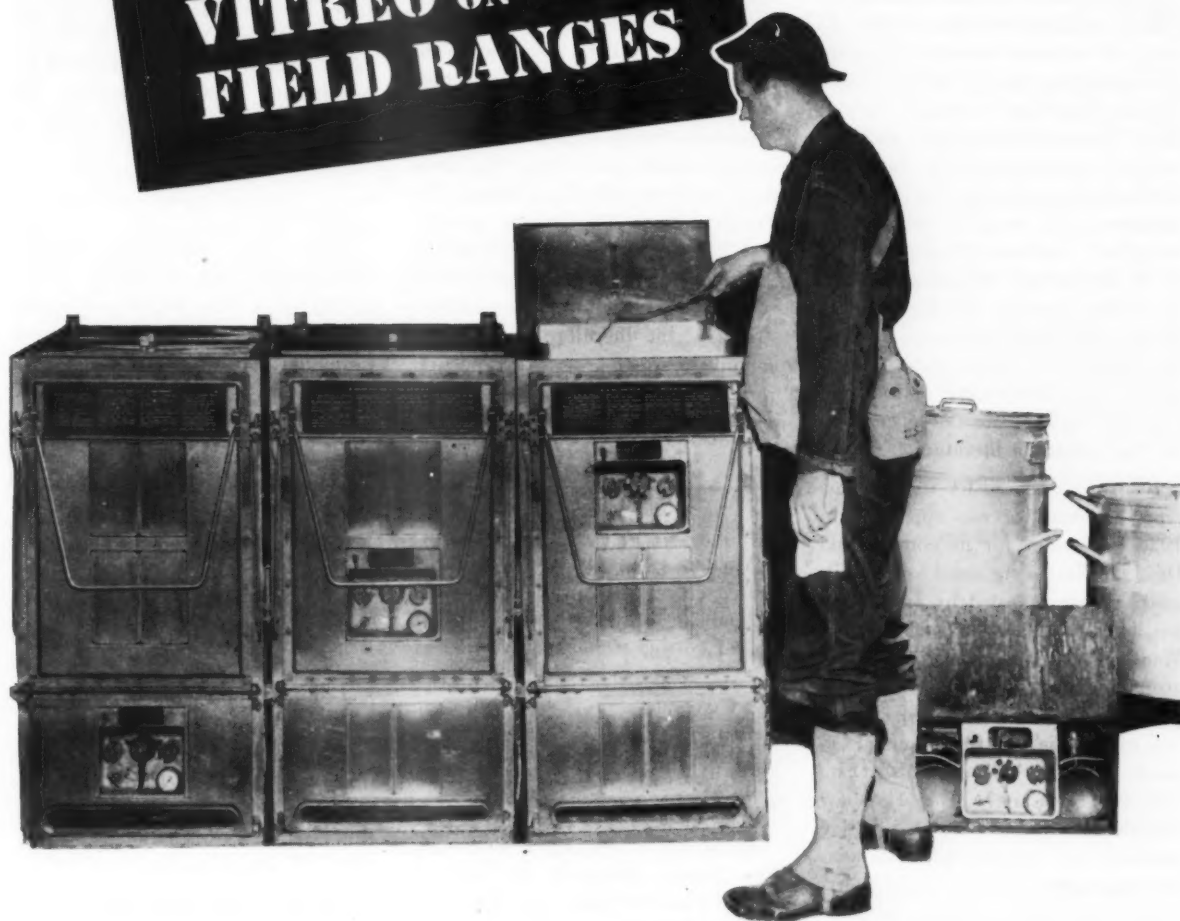
Sale of these bathtubs will be limited to military orders, for export authorized by the Foreign Economic Administration, for installation in construction projects specifically authorized by WPB, or for petroleum operators approved by the Petroleum Administration for War, WPB said.

Fourth quarter output of tubs will continue to be limited to cast iron since the supply of steel sheets is still insufficient to permit its use, the Cast Iron and Formed Enameled Ware Industry Advisory Committee learned at its recent meeting.

The job of producing the 50,000 tubs during the fourth quarter has been assigned to the same five manufacturers who produced the 50,000

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## VITREO ON FIELD RANGES



**T**O THE right of the cook is an American Gas Machine Co. generator used in field ranges and other cooker units.

The shields over the fuel tank and air tank were made and enameled in our shop.

The instruction plates on the ranges

are also of our manufacture.

These and other AA1 applications have kept our enameling plant in continuous operation during this war.

Have you any post-war plans where our 25 years' enameling experience might be helpful? Now is a good time to discuss them.

**VITREOUS STEEL PRODUCTS CO.**

BOX 1791, CLEVELAND 5, OHIO (Factory at Nappanee, Ind.)

## New Enamel Bibliography and Abstracts published by A. C. S.

**A** NEW BOOK which should prove a valuable addition to the library of everyone interested in porcelain enameling has just been released by the American Ceramic Society. It is "Enamel Bibliography and Abstracts", which covers the literature of the industry from 1928 to 1939 inclusive, with complete subject and co-author indexes. Compiled by E. H. McClelland, technology librarian, of the Carnegie Library of Pittsburgh, and edited and published by the American Ceramic Society, it offers a condensed source of information and an accurate reference book for the industry's literature.

Realizing the need for work of this type, a committee was appointed in 1938 to arrange for its compilation. Dr. J. E. Rosenberg acted as committee chairman, assisted by J. E. Hansen, Ferro Enamel Corp., D. G. Moore, National Bureau of Standards, Karl Kautz, Molybdenum Corporation, Dr. A. I. Andrews, University of Illinois, W. F. Wenning, Ceramic Color & Chemical Mfg. Co., and H. D. Carter, The Harshaw Chemical Company. Other industry members are credited with cooperative assistance.

The Committee arranged with E. H. McClelland to make the necessary study and compile the abstracts. Dr. McClelland was assisted in the compilation by Morris Schrero of the Carnegie Library staff. Other compilation work and editing was done by Mary J. Gibb and the staff of the American Ceramic Society.

Underwriting of the work was handled through contributions from leading manufacturers of enameled products and raw material, equipment and supply manufacturers serving the industry.

Produced at a cost of \$5,000, the volume is to be sold at \$5.00. The Society reports that after sufficient funds have been secured to cover the original publication expenses, all additional income is to be placed in a revolving fund. As a result of the

excellent response of the underwriting group, it is anticipated that the revolving fund will be sufficient to do all the preliminary work on a future edition to be published later.

Included in the volume are approximately 5,000 references. In addition there are 300 U.S. patents, 94 British patents, 92 German patents, and 79 patents from other countries.

This new Bibliography, combined with the first Bibliography and Abstracts of the literature on enamels, compiled by Robert D. Landrum,

Harshaw Chemical Company, and Herbert D. Carter, brings the literature references on "modern enameling" to within approximately four years of current literature for the first time. The previous work by Landrum and Carter, and published by the Ceramic Society in 1939, contained approximately 2,000 references and covered a period of sixty years in the enameling industry.

Order your copies of "Enamel Bibliography and Abstracts" (price, \$5.00) from The American Ceramic Society, Inc., 2525 North High Street, Columbus, Ohio.

### Industrial and Commercial Publications

#### Industrial Ovens

Various types of industrial ovens are covered in an informative booklet published by the Kirk & Blum Manufacturing Company. Write to the company at 2816 Spring Grove Avenue, Cincinnati, Ohio, for your copy.

#### Featherweight Protective Garments

Resistoflex Corporation, Belleville, New Jersey, announces the publication of a new 16-page, two-color catalog on its "Featherweight" and heavy duty protective garments made of solvent-proof transparent plastic. The plastic clothing is for the protection of both men and women workers whose duties bring them in contact with dust, gas fumes, grease, oil or organic solvents.

#### Contribution to an Allied Victory

The O. Hommel Company, of Pittsburgh, has just released an interesting two-color booklet telling the story of the company's participation in the all-out production drive on the home front. The booklet is unusual in its approach to the story, and contains an interesting series of war combat photos dramatically illustrating how the Hommel products have been used to help knock out the Axis.

The attractive piece contains a tribute to Oscar Hommel, the company's late president, and carries through with the dramatic photos showing the wartime use for frit, colors, powdered magnesium, bronze powder, thermite and other war products which the company has produced.

For copies, write on company stationery to O. Hommel Company, 209 Fourth Avenue, Pittsburgh, Pennsylvania.

#### Detrex Triad Alkali Cleaners

Alkali and emulsion cleaning compounds developed by Detrex for all types of metal cleaning jobs are discussed in detail in an eight-page booklet. It includes descriptions of many uses for alkali cleaners. Copy of this booklet is free on request to Detrex Corporation, 13017 Hillview Avenue, Detroit 27, Michigan.

#### Amazing New World

A colorful new booklet "A Peek Into the Amazing New World of Tomorrow" has recently been released by the Geo. D. Roper Corporation, Rockford, Illinois. It is designed to interest gas companies and dealers, as well as architects, pre-fabricated home manufacturers, apartment house

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## Big Turnout for Chicago Enamelers fourth wartime meeting

THE Chicago District Enamelers Club had a record-breaking turnout at its fourth wartime meeting held at the Graemere Hotel, Chicago, Saturday, September 23. Attendance, which would normally be expected to be in the neighborhood of sixty-five, bounced to over ninety.

This is evidence of the interest among those associated with enameling in keeping right up to date on progress in the field.

### Business meeting

E. E. Howe, president of the Club, presided and passed a word of encouragement to those in attendance from more distant points to continue their interest in the Club.

Dana Chase, secretary and treasurer, reported a healthy financial situation. He also reported a total paid membership of ninety-seven for the current year, which is more than double the membership for the preceding year. (Later dues payments brought this total to one hundred and two).

Chairmen of the membership and publicity committees were introduced — Wayne Deringer of A. O. Smith and G. W. (Jerry) Hofstetter of Ferro Enamel Corporation, respectively.

Another matter of business discussed was the desirability of applying to the Chicago Technical Society Council for membership. After the cooperative efforts of the association were described, it was unanimously moved that the Chicago Enamelers enter an application for membership.

### The program

A most interesting and varied program had been planned by the program committee, headed by W. J. Plankenhorn, Federal Electric Co., Chicago. It was an invasion of the West by Eastern speakers. First on the program was Edward Mackasek, managing director of the Porcelain Enamel Institute, who spoke on "Post War Possibilities and Their Effect on

Enamel Shop Operation." The second speaker was Harrie Parker, Wheeler Reflector Company, who spoke on "Change of Methods for the Future." Third on the program was Dr. George Henry Spencer-Strong, Pemco Corporation whose talk was "Enamelers' Goal."

### Mackasek

Mr. Mackasek prefaced his remarks with a strong statement of



Edward Mackasek

his belief that the enameling industry is facing unprecedented possibilities for future development. This belief is based on the results of interviews with plant men and executives active in the industry.

Among the reconversion problems which he highlighted were:

1. The high percentage of workers that would have to be used after the war who are unacquainted with enameling technique.
2. The stabilization of prices by the Government.
3. The possible tendency to a carry-over of wartime wages.

The speaker unquestionably felt that these and other obstacles can and will be surmounted by enamelers. He pointed to the tremendous volume of postwar enameling as has been indicated by Institute market research.

### A note of warning

Said Mr. Mackasek, "There may be some tendency as a result of the apparent potential in business for enamelers to say 'we should worry—with this amount of business for the future'."

He pointed to the possibility for loss of markets, and demonstrated that there have been many cases where "an inferior material, aggressively pushed, has displaced a better product."

### Industry assets

Among the assets listed by the speaker were the following:

1. A product that is *supreme* for many applications where it is now used.
2. An unshakeable faith among its members in the industry's ability to solve its problems.
3. Much better plants.
4. A new "know-how" — resulting from war work. (He referred to plants, where 1/16" clearance was formerly considered close, in which there is now work being handled where accuracy is measured in thousandths of an inch.)
5. A good general degree of financial stability.
6. An increasing willingness among industry members to work cooperatively and exchange processing information freely.

### Imagination

The importance of a healthy imagination among those responsible for development in the industry was stressed. Said Mr. Mackasek, "The industry is not lacking in imagination." He illustrated this with the point that many years ago a complete one-piece steel bathtub was developed, and that, likewise, many years before architectural porcelain became a fact excellent samples of the product had been produced. "Here," said Mackasek, "is where cooperative effort must come into play." No one individual or company can put over a new product as successfully as it can be done through the "push" of combined cooperative effort.

### Parker

The high spot of the program, from the standpoint of entertainment, was an interesting travesty on correct enamel plant operation offered by Mr. Parker in an extremely clever and humorous vein. The steel producers, frit manufacturers and technical men in the audience came in for a good "panning" and enjoyed it.

We recommend this speaker to any group wanting a high spot of humor in their enamel meetings that is tied up intimately with their own activity.

### Spencer-Strong

In his paper, Dr. Spencer-Strong outlined the "Enameler's dream" or the "Enameler's Goal" as a composite picture of progress in many directions. He pooh-poohed the pessimists who feel that due to the fact that competitive materials have gained impetus during the war, while enameling has been more or less inactive, that we are destined to come through the war as a "dead" industry.

### A breathing spell

He pointed out that there have been many advantages on which the industry can capitalize as a result of wartime inactivity. It represents about the first opportunity in a fast growing field for the analysis of problems and preparation for their elimination. He stressed the importance of developments in other fields which can be made most useful in the future enameling plant.

Among new developments discussed were methods of pickling, methods of spraying, drying and heat treatment. Dr. Spencer-Strong described some of the physical characteristics of the new developments used for special wartime requirements which were thought impossible pre-war.

### Progress reviewed

In closing he said, "It would appear that rather than being a dead industry, the enamel industry, at the present time, is making more progress towards its self-appointed goal than at any time in its history. Acid-resisting enamels have been improved and are being improved. Opacification qualities of cover coat enamels have been greatly improved, and are

still being improved. The application of cover coat enamel direct to the metal is possible and steps are rapidly being taken to make it a production item. Production of enamels for use at lighter and lighter application weights is progressing rapidly and the value of such light application weights is known. Maturing temperatures of enamels are being reduced and methods of proc-

### Chicago District Enamelers Club Committees

#### Program Committee

- W. J. Plankenhorn, Federal Electric Company, Chairman.
- C. M. Andrews, University of Illinois.
- E. C. Dexheimer, National Enameling & Stamping Co.

#### Membership Committee

- W. A. Deringer, A. O. Smith Corporation, Chairman.
- George Tuttle, Benjamin Electric Mfg. Company.
- E. P. Bolin, Chicago Vitreous Enamel Product Co.

#### Publicity Committee

- G. W. Hofstetter, Ferro Enamel Corporation, Chairman.
- H. H. Moad, Chicago Vitreous Enamel Product Co.
- A. S. Ault, Chicago Vitreous Enamel Product Co.

essing and control are being carefully investigated with an eye to improvements.

"All in all, there has been a great increase in the investigation of the basic features controlling the industry so that rather than having 'died' during the war years, the enamel industry has actually progressed and if it is able to maintain its present rate of progress there is no question but that the industry will continue to grow and expand."

### Five more meetings

The schedule of meetings for the "Club year" calls for five more meetings, including the annual meeting in April, 1945. This is reported by Chairman Plankenhorn. Tentative dates set are November 4, December 9, January 27, March 3 and April 23.

The committee reports unprecedented interest and a healthy number of suggestions for program subjects that will be of interest to the group. New developments in process-

ing and equipment bring to a new high the interest among plant men in activity of this nature.

### Cribben man promoted

Art Lander, formerly process engineer in the enameling plant at Cribben and Sexton Stove Company, Chicago, has recently been promoted to ceramic engineer. Mr. Lander has been with Cribben for the past twelve years.

### Joe Boehler to Murray Corp.

J. J. Boehler has joined the organization of Murray Corporation, Detroit, Michigan, according to a recent report.

Mr. Boehler was previously with R. G. Bock, Chicago engineering firm. Firms in the enameling industry with whom he was formerly connected in plant executive positions include Seeger Refrigerator Co., St. Paul, Minn.; Baltimore Enamel & Novelty Co., Baltimore, Md.; and Chicago Vitreous Enamel Product Co., Cicero, Ill.

### New factory manager at McCray

Announcement comes from V. C. Knight of McCray Refrigerator Company, Kendallville, Indiana, of a new addition to the McCray "family." Norbert Schroeder became associated with the company as factory manager August 1. For fifteen years prior to joining their organization, Schroeder was in the employ of Hamilton Manufacturing Co., Two Rivers, Wisconsin. His experience is reported to include both steel and wood-working processes. The new McCray plant executive is a director in the National Foreman's Association.

### G. E. announces new refrigerator sales manager

L. H. Miller, new manager of General Electric's household refrigerator division, announced that A. G. Chaffer has been appointed sales manager of the division.

Mr. Chaffer joined the appliance and merchandise department in 1930, as Cleveland representative. Among other positions he has held with the

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tubs authorized for the third quarter: American Radiator & Standard Sanitary Corporation, Louisville, Ky.; Crane Company, Chattanooga, Tenn.; Eljer Company, Salem, Ohio; Kohler Company, Kohler, Wis., and Richmond Radiator Company, Uniontown, Pa.

Although authorized bathtub production for the balance of 1944 is limited to 50,000 and can be distributed only for specified purposes, additional production may be authorized for unrestricted distribution under the "spot authorization" procedure, the industry committee was advised.

#### **Steel allotment for civilian goods "spot authorization" manufacturers**

The War Production Board's Requirements Committee has allotted 100,000 tons of carbon steel and 25,000 tons of alloy steel for distribution to manufacturers of civilian goods during the fourth quarter of this year under the "spot authorization" procedure, J. A. Krug, Acting WPB Chairman, announced.

Mr. Krug said: "This action will permit WPB regional offices to grant purchase authority for new production steel to manufacturers whose applications under the spot procedure are approved. The Requirements Committee made this steel available for use under the spot procedure only after it was determined that it would not be needed for war or programmed essential civilian goods production. The only steel available until the present time for spot production has been in idle and excess stocks.

"This new production steel reserve will be used primarily to make allotments to small plants which are suffering hardship. In addition it will be used to provide 'fill-in' material to be used in conjunction with idle and excess stocks.

"Regional offices will be permitted to make allotments up to 100 tons of carbon steel during the quarter, but all applications for more than that amount must be referred to Washington."

It is indicated that in the determination of allotments the following

preferences in order of importance will be used as a guide:

1. All applications which are certified by Smaller War Plants Corporation as hardship cases,
2. Applications from plants employing fewer than 250 wage earners,
3. Applications for authorization to produce Office of Civilian Requirements preferred products,
4. Applications indicating ability to use large quantities of surplus materials with "fill-in" amounts of new materials, or facilities immediately available for utilization of new materials, or provision for employing a large number of workers.

#### **Speed-up planned for partial payment of terminated contract claims (OCR general regulation No. 2)**

A prime contractor or subcontractor whose war contract has been canceled can file application immediately for partial payment of the costs incurred by him that are allocable to the terminated portion of the contract. The making of partial payments does not relieve contracting agencies of the responsibility for making the final settlements with the utmost promptness, Regulation No. 2 states.

It is provided that immediate partial payments of at least 75 and up to 90 per cent of his estimated costs shall be made within 30 days of application by the contractor. Upon submission of adequate accounting data, additional payments may be made.

These procedures were drawn up by a committee comprising representatives of the War and Navy Departments, United States Maritime Commission, Reconstruction Finance Corporation, Smaller War Plants Corporation, War Production Board, Foreign Economic Administration and Treasury Department and were approved by the Contract Settlement Advisory Board.

*Foods will not discolor when stored in porcelain enameled ware pans.*

#### **Relaxations in WPB orders during August, 1944**

**Capital Equipment**—Amended Pri. Reg. 24, 8-29-44—permits producers of capital equipment, including machine tools, precision measuring and testing instruments, electric motors and generators, and other general industrial equipment to begin production on unrated purchase orders for such equipment.

**Chemicals**—Amended P-135, 8-24-44—Lifts the dollar quota restriction from purchase of chemicals for laboratory use.

**Civilian Production**—Issued Pri. Reg. 25, 8-15-44—Establishes rules which will permit WPB field offices to authorize manufacture of civilian type products under certain conditions so as not to interfere with war effort. Direction 1 lists orders affected.

**Civilian Production**—Amended L-248, L-182, L-185, L-74, L-187, L-199, L-75 and L-23-c, 8-30-44—Orders amended to subject plumbing, heating and cooking equipment to field authorization for civilian production.

**Enamel Ware**—Amended L-30-b, 8-23-44—Permits production of several items of domestic and hospital enamel ware previously prohibited.

**Imports**—Revised M-63, 8-17-44—Removes Governmental control from 50 important commodities, effective Aug. 19, 1944.

**Lighting Fixtures**—Amended L-212, 8-16-44—Removes restrictions on use of metals in utility type incandescent lighting fixtures and makes minor relaxations on other types of fixtures.

**Refrigerator Sales**—Revised L-38, 8-31-44—Modifies rules governing production and sale of industrial and commercial refrigeration and air conditioning equipment to give them more flexibility and provide for a proper distribution to most essential users.

**Stoves**—Revocation of Schedule B of L-23-c, 8-30-44—Removes restrictions limiting number of models and fuel types of domestic cooking appliances and heating stoves.



# Exact Fit



# Guaranteed

## When you Specify T-K Units for Standard Equipment or Replacement Use

Exact fit . . quick efficient installation on EVERY MAKE of electric range . . that's one of the BIG features of T-K Heating Units. Whether it's for standard equipment or replacement use, our series of eighteen rings makes installation a quick, easy, perfect-fitting job! And remember, the T-K "Symbol of Service" is widely known among the trade and the consumer. It's their assurance of finest quality . . and YOUR assurance of a degree of heating and cooking efficiency unsurpassed in the history of the industry. Send for all the facts about the T-K cooperative dealer campaign . . or about T-K's better units for industrial applications.



## TUTTLE & KIFT, Inc.

MAIN PLANT AND GENERAL OFFICES  
1025 NORTH MONITOR AVE., CHICAGO 39, ILLINOIS

Domestic & Industrial Heating & Cooking Units • Switches • Controls

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company is that of merchandise district manager in Pittsburgh and sales manager of the home laundry equipment division in Bridgeport.

## Make the most of transportation facilities urges WPB and ODT

An intensive drive to secure the full cooperation of the nation's shippers and receivers in getting more use out of existing transportation facilities during the coming peak load months has been inaugurated by the Transportation and Storage Division of the War Production Board.

The Office of Defense Transportation recently reported that "rail car loadings are currently exceeding 1943 levels, rail hauls are growing longer, heavier loadings carried per car and the ton-mile total are still moving impressively upward."

"Among the suggestions to improve the transportation situation," said the Storage and Transportation Division, "are the following:

"1. Load all equipment immediately after placement and release cars to the railroads with full and correct billing instructions without delay.

"2. Load cars so they can be unloaded from either side; stow and brace shipments in cars carefully so as to avoid damage, thereby making unnecessary the replacement of shipments.

"3. Unload cars immediately upon receipt, and release to the railroads without delay equipment that is not to be reloaded after removing all dunnage and debris and closing doors in order to keep the interior dry and clean. This should also be done on Sundays and Holidays.

"4. Load all cars to capacity.

"5. Order only the number of cars required for immediate loading.

"6. Keep in contact with local railroad authorities in regard to switching schedules, etc., and arrange loading and unloading operations accordingly.

"7. Be prepared to adjust loads to utilize different sizes or types of equipment when exact, ideal requirements cannot be met.

"8. Utilize the form of transportation most readily available.

## **Tappan's postwar expansion program . . (Continued)**

ticularly for some foods, such as cabbage, onions and cauliflower.

New ideas of post-war improvements and post-war projects are submitted to an executive board of four members headed by the Tappan vice president. If approved by that group, they are passed on to a larger advisory group for study and then to the firm's engineers for specifications, and to artists who draw sketches of the proposed items. A wooden model is then made to show up weaknesses before actual production models are approved.

These ideas are tested in the Tappan experimental kitchen under the supervision of Miss Florence Windecker, home service director.

The company's vice president believes that post-war manufacturing

will develop through three definite stages.

First — immediately after the war there will be restricted production of articles of pre-war design because materials will be scarce and plants won't have a chance to change their equipment.

The second period, coming several months later, will see manufacturers turning out a complete line of products of conventional design, but incorporating certain new developments and improvements.

Finally the third stage, which will take place very much later than the second, will be an era of fantastic models when we will be buying streamlined cars, kitchen appliances, and home furnishings that are only dreamed of now.

## **Industrial and Commercial Publications . . (Continued)**

owners, building and loan associations and prospective home builders.

The new booklet is a story book in appearance. An animated princess character scampers gayly through the pages looking at the amazing new airplanes, automobiles, furniture, homes and other miracles of tomorrow.

In her journey she suddenly arrives at the location of six new Roper Gas Kitchens which will come into being soon after the end of the war.

Although some of the general illustrations may seem somewhat fanciful, the colored renditions of post-war gas kitchens are quite practical. Each kitchen shown is a kitchen that can actually be built soon after the close of hostilities when once again appliances and kitchen cabinet manufacturers go into action on an intensive scale.

### **Retail Store Modernization**

The National Retail Furniture Association reports that, in answer to wide-spread demand by retail merchants for information on store modernization, a book is being sent to press soon that will contain the re-

sults of an exhaustive survey on store design. Information from the research laboratories of industry and recommendations from leading architects are to be included.

The book is compiled as a manual in which each phase of modern store designing will be outlined to guide retailers in crystalizing their ideas for revamping their stores to meet the requirements of the post-war period. Illustrated designs for store fronts, windows, interiors, displays, elevators, air conditioning, heating, fire protection, equipment, service departments and receiving and shipping spaces will be shown. Porcelain enamel is expected to be well represented.

The association, months ago, questioned its membership on post-war plans and learned that a high percentage of furniture operators are planning to put up new buildings or convert existing facilities to meet the needs of tomorrow. Testing the modernization sentiment further, the association arranged a store design clinic during the July home goods market in Chicago at which exhibits from the drawing boards of many manufac-

turers and architects were displayed at the Merchandise Mart. More than 500 retailers attended a four hour meeting at which experts discussed physical requirements of the post-war store. More than 3,000 retailers visited the displays.

The Manual will reach the public in the late fall. Each member of the National Retail Furniture Association will receive a copy and books also will be made available to other merchants seeking ideas for modernization.

### **Motion picture "Flame Facts" available to industry**

A 20-minute, 16 mm. Kodachrome sound film showing how and why fire burns, the appropriate extinguisher for each type of blaze, and its correct use, has been produced by Walter Kidde and Company. It illustrates some of the common errors in industrial first-aid fire-fighting which can be responsible for failure, and gives valuable tips on fire prevention.

Available only to industrial plants, public utilities and other groups directly concerned with first-air fire-fighting — apply to Princeton Film Center, Princeton, New Jersey.

### **Armstrong elected president of personnel directors**

Roland E. Fulton, executive vice president of the National Association of Personnel Directors, announced that Thomas O. Armstrong has been elected for a second term as President of the Association. Mr. Armstrong is manager of Industrial Relations at the Electric Appliance Division plant of the Westinghouse Electric and Manufacturing Company, East Springfield, Mass.

The objectives of this Association are to secure full cooperation of all agencies of the government, industry, labor and agriculture in personnel work; to create a medium among members for exchange of ideas and methods; and to serve personnel directors as a clearing house for information covering current events in the field of business, industry, labor and government.

# Superior Products at the Low C

While you are planning the conversion of your porcelain enameling plant, and making ready in your production lines for post war manufacturing, select the equipment that will produce for you superior products at the lowest possible cost.

Smooth, efficient operation of an enamel plant is predicated upon good materials, proper control and the finest equipment.

We recommend equipment and supplies only after their performance has been tested in our laboratory and proven in the field.

WRITE FOR INFORMATION ON ANY ITEM FOR YOUR PORCELAIN ENAMELING PLANT.

## CHICAGO VITREOUS ENAMEL PRODUCT CO.

*Makers of Fine Porcelain Enamel*

CICERO 50, ILLINOIS

**THE FRANTZ FERROFILTER** has established a record of excellent performance in the removal of iron and other magnetic material from vitreous enamel.

Shown here is the FerroFilter, Model A, gravity type. There is a FerroFilter to fit your plant. The gravity type models are designed for general mill room use. The pipe line type for closed circulating systems for ground coat dip tanks or where ever enamel is pumped through a pipe line.

This equipment is designed to help the operators of enameling plants to produce a superior enameled product.

We recommend the FerroFilter and say without fear of contradiction that it does a better job of removing magnetic materials from enamel than any competitive model.

Ask for a demonstration. We'll welcome it!





W Cost!

**CHICAGO VIT—A dependable source for consistently clean and uniform clays.**

X Brand clay has wide acceptance in all types of enameling plants. T and D Brands, likewise are widely used for specific applications.

These clays have been carefully selected and blended in Chicago Vit laboratories, and are superior to imported clays previously used. The refining operations insure a clean and uniform clay for enamel use.



**X BRAND**—English and domestic clays, scientifically blended to give the best results in porcelain enameling. It is purified, powdered and air floated. It imparts high opacity, a high gloss to all enamels. Its working properties are better than the best grades of imported enameling clays.



**T BRAND**—A special purpose "low set" domestic lump clay. It gives much less "set" to enamel than imported or general purpose domestic clay. It has good opacity—ideal when used with X Brand or equivalent clays for "set" control. Excellent for cover coat dipping enamels, promotes smooth, even coatings.



**D BRAND**—A special purpose "low opacity" or "clear" domestic clay. For use in colored enamels where deep, clear color is desired. This clay has good suspending qualities and is especially recommended for black or dark blue enamels.

*Every item, before it is added to the Chicago Vit line, is subjected to grueling tests for quality and performance, first in our laboratory and finally in the field*

## The permanence of porcelain enamel protection against corrosion (Continued)

to rates of deterioration and concludes that there is no great material difference. It is estimated that there is over a half million miles of pipe in use in underground transportation of water, gas and oil. Speller states (6) "Coatings of various materials that will prevent action between the soil and the metal are commonly used for this purpose. These include mainly:— paints, metallic coatings, bituminous base coatings and hydraulic cement concrete. The standard linseed oil plants are hardly worth the expense of application for protection but some of the newer types of paint containing rubber derivatives or the more stable synthetic resins, are more durable in water. Coatings of this class, however, should not be relied upon for permanent protection."

### A master for corrosion

Certain vitreous porcelain enamels on steel judged by the modern chemists' knowledge will last as the sands of time.

Vitreous porcelain enamel on steel has entirely proven its usefulness in the manufacture of many household products such as refrigerators, gas and electric stoves, kitchen sinks, table tops, bathtubs, lavatories and a host of kitchen ware and including wide developments in the field of architectural porcelain on steel over the past four decades. There has not only been an improvement in the drawing qualities of enameling steel stock, but there has also been amazing development in acid resisting and permanent wet process vitreous enamel on steel. These beautiful lustrous finishes can be made in any desired color or imitation grain of wood or finish desired.

### A completely permanent

#### casket is possible

Grave vaults of porcelain enameled steel have been manufactured for more than a decade, but they are poorly designed to withstand earth pressures, hence the protective porcelain covering is partially nullified.

If a completely permanent casket

is desired, one may be suitably and most attractively manufactured by creating a dignified design, due to the great flexibility in formed metal

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This article adapted from an address to the National Selected Morticians in Chicago on September 19, 1944.

porcelain enameling stock, fired with an imitation mahogany or mother-of-pearl porcelain finish outside and in, and handsomely decorated inside with any desired color of silk-like fibreglass fabric.

Back of this suggestion for the porcelain enameled one-piece steel casket lies a great deal of research

and development work. My company, for instance, has spent ten years and a great many thousands of dollars in the perfection of the technique required for the successful deep drawing of one-piece porcelain enameled caskets. Much of this experience was gained in the fabrication of our "Alliance-Ware", including enameled steel bath tubs and other similar products, requiring extremely large press equipment, a thorough knowledge of deep drawing technique and materials designed for this specific type of work.

Years of experience in the production of uniform one-piece steel construction for products of this type, plus research wherein our product has been thoroughly tried with numerous accelerated tests, has proved to us without any doubt that vitreous porcelain enamel on steel can be made the logical answer to the ever present desire for permanence in casket construction.

With the proper degree of interest indicated by morticians, I foresee the possibility for ingenious and enterprising casket manufacturers to start a new industry by producing this better product through the judicious use of design and materials. Caskets of vitreous porcelain on steel can be made better and more permanent than anything that all history has yet devised.

## Porcelain enamel's place in the postwar electrical appliance industry (Continued)

This same thing is true when a designer considers eliminating white porcelain enamel from the major kitchen appliances. The concept of the modern kitchen is built up around this material. The American public has proved that it admires and purchases appliances finished in that manner. In spite of this apparent solidarity of position, the porcelain enamel industry must direct its effort toward improving its product and eliminating all possible deficiencies.

Porcelain enamel had a very definite place in the electrical appliance

industry before the war and, in my opinion, should be in excellent position to both hold this place and expand its uses on postwar appliances. To achieve this expansion there must be a continued and never-ending fight for improvement of materials and application methods—and, above all, continued close cooperation between material suppliers and the appliance manufacturer.

With proper emphasis on these points I see a continued close relationship between our industries which cannot fail to prove mutually profitable.

## The how and why of sign advertising... (Continued)

### Part VII

the fading characteristics of various materials, to summarize these points, should be considered in the selection of the sign material for any specific job.

#### 4. Will it be exposed to salt sea air in the coastal cities?

Salt sea air tends to rust and discolor most sign materials in short order. You know from personal experience that effect of salt air on metal if you have ever left your car for any length of time near the ocean. Almost overnight the chromium plate will be covered with a dull gray accumulation which, if left untouched, will eventually result in pitting the surface.

For all signs that are to be used along the seacoast, porcelain enamel has been the standard for many years. It is practically impervious to the effect of salt water and brilliant sun. Large sign users have found that it is uneconomical to use any other material in sea-coast cities.

Tropical climates, too, destroy the surface of most signs unless they are made of extremely durable materials. Doorplates and other signs for the tropical countries are manufactured in the porcelain enameling plants of this country and distributed through manufacturers' exporting representatives. Users of porcelain enameled signs for export use include Prophylactic toothbrushes, Vick's Chemical Company, Socony-Vacuum Oil Company, Standard Oil Company of New Jersey, Goodyear Tire & Rubber Company, Ford Motor Company, etc.

#### 5. Will it be used where it will collect grime?

Signs located where the air is filled with motor fumes, smoke and other forms of grime must be cleaned or repainted frequently. Some companies such as the Florsheim Shoe Company, who feel that an impression of immaculate cleanliness must be created for their product, have their signs washed at regular intervals. These intervals are comparatively short in the downtown sections

of metropolitan centers. For a number of years Florsheim has used porcelain enamel exclusively. Soap and water will restore this material to its original lustrous appearance with a minimum of work except in localities of most severe atmospheric conditions where a cleaner may be required.

Street signs in the metropolitan centers collect grime in the same way and must be washed occasionally to give them maximum visibility. Here again, porcelain enamel is used for marking its streets and boulevards by a great many municipalities because of economy, serviceability and permanent attractiveness.

#### 6. Will it be exposed to constant abrasion and vibration?

When buying a sign for use on a truck or other vehicle, the effect of vibration and mild abrasion must be considered. Signs on the sides of the trucks used by the Railway Express Company, the oil companies, building contractors, and others along the same line come in this category.

A highly visible, favorable appearance is desired and the sign must stand scratches and jolts. For this reason most sign buyers prefer porcelain enamel. When the Burlington Railroad manufactured its first streamlined Zephyr for the route between Chicago and Denver, the large sign curved around the nose of the train was made of porcelain enamel. This was the material selected by engineers to withstand the constant abrasion and vibration encountered at high speeds.

#### 7. Will it be subject to rough handling?

Signs which for maximum effectiveness can not be mounted where they can be protected from bumps from vehicles or other objects, must be of a material that will withstand injury. It is best to give signs protection, however, for under rough usage any material is bound to mar. If signs can not be protected, such treatment is less destructive of some

materials than others. For such purposes, signs of painted or enameled wood are recommended.

In this connection it is well to note the practice of such organizations as Railway Express Company. Hundreds of their trucks in service from coast to coast make use of as many as nine porcelain enameled signs each. They mount them carefully and even though you find their trucks squeezed into the narrowest alleys, and apparently given the roughest usage a delivery truck ever gets, they report insignificant sign replacements. Their trucks and other equipment always make a presentable appearance—neat, clean and serviceable.

If the sign must be mounted on a surface that isn't a true plane, you will want a material that will lend itself to bending. For this purpose, a light lithographed sign on metal is preferred. It can be bent to conform to the desired surface without injury to the face. In such cases, if the curve is constant—that is, if all the signs in a single order are to be mounted on a similar curved surface—a more permanent sign can be specified and manufactured with the desired curve in it. Examples of such signs are the half-round porcelain enamel "Old Dutch" signs that Cudahy Packing Company bought by the thousands for corner post mounting years ago, and the modern curved sign of the same material which appears on the nose of the Burlington Route's streamliners, the Zephyrs.

Other questions which should be briefly checked as the sign material is selected include the following:

#### 8. How will your sign be hung?

More about this point will appear in connection with sign standards. At this point it will suffice to point out that the type of mounting and the type of personnel who will put up your signs should be considered in connection with the selection of sign material. If the sign will be erected by a specialized maintenance and erection company you have no problem, as the sign manufacturer will see to it that instructions accompany the sign. If the dealers or salesmen

Over →



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put up your signs, you will want to cooperate with the sign supplier in working out instruction material and,

that the manufacture of quality signs involves slow, intricate processing and ample time should be allowed for the producer to follow normal



*"For a number of years Florsheim Shoe Co. has used porcelain enamel exclusively." — "Soap and water will restore this material to its original lustrous appearance with a minimum of work . . ."*

perhaps, hold meetings on the way signs should be erected.

#### **9. What quantity of signs can be bought in a single order?**

In general, the unit purchase cost of a sign will be reduced as the number bought at one time is increased, up to a certain quantity, depending on the manufacturing process. It is economical, therefore, to buy as large a quantity at one time as it is possible to handle. Large users of signs usually make a survey of the anticipated sign requirements for the coming year and then purchase their requirements for this number of signs at one time.

They may request the manufacturer to produce these as soon as possible and then ship them to company warehouses for distribution to their dealers. In cases where such facilities are not available, the sign manufacturer may be given instructions to manufacture the required quantity for a period of three or four months at a time. It is to be remembered

operations without any necessity for rushing. To insure having an adequate supply of signs on hand when needed, the buyer, therefore, should anticipate his requirements well in advance.

#### **Know your materials — their possibilities and limitations**

A study of the way each type of sign material is developed and used will give you a valuable understanding of what you can expect in each case. Sign suppliers will be glad to furnish you with material for such a study or take you through their plants to demonstrate how signs are made. An understanding of the way in which each type of sign is made will acquaint you with the possibilities and the limitations of each material and type of sign. It will place you in a position to specify more clearly exactly what you want.

If you haven't a workable understanding of signmaking and how a sign specification calling for a bid should be written, call on reputable

suppliers to prepare such specifications for you. Without a carefully written specification, several responsible suppliers may submit widely varying bids due simply to difference in their understanding of the specifications.

#### **What the buyer specification should include**

In sending out bids for signs the buyer should include the following information:

1. Quantity
2. Size
3. Shape
4. Colors
5. Detail of design (usually provided by drawing or sketch).
6. Holes or other method of mounting.
7. Frame or hanging equipment.
8. Type of packing, including quantities per package.
9. Accessories to be furnished, such as screws, chains, turn-buckle, etc.
10. Rate at which to be delivered.
11. Guarantee of service to be made on signs furnished.

The problem of distribution is discussed in Part VIII of this series. Leasing signs, sharing the cost and selection of selling methods are some of the subjects covered.

#### **Great things come from small beginnings**

*A teakettle singing on the stove was the beginning of the steam engine.*

*A shirt waving on a clothesline was the beginning of a balloon, the forerunner of the Zeppelin.*

*A spider web strung across a garden path suggested the suspension bridge.*

*A lantern swinging in a tower was the beginning of the pendulum.*

*An apple falling from a tree was the cause of discovering the law of gravitation.*

*If you think you can't do very much, and that the little you can do is of no value, think of these things.*

— Detroit Purchaser

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